PAPER TRADE JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

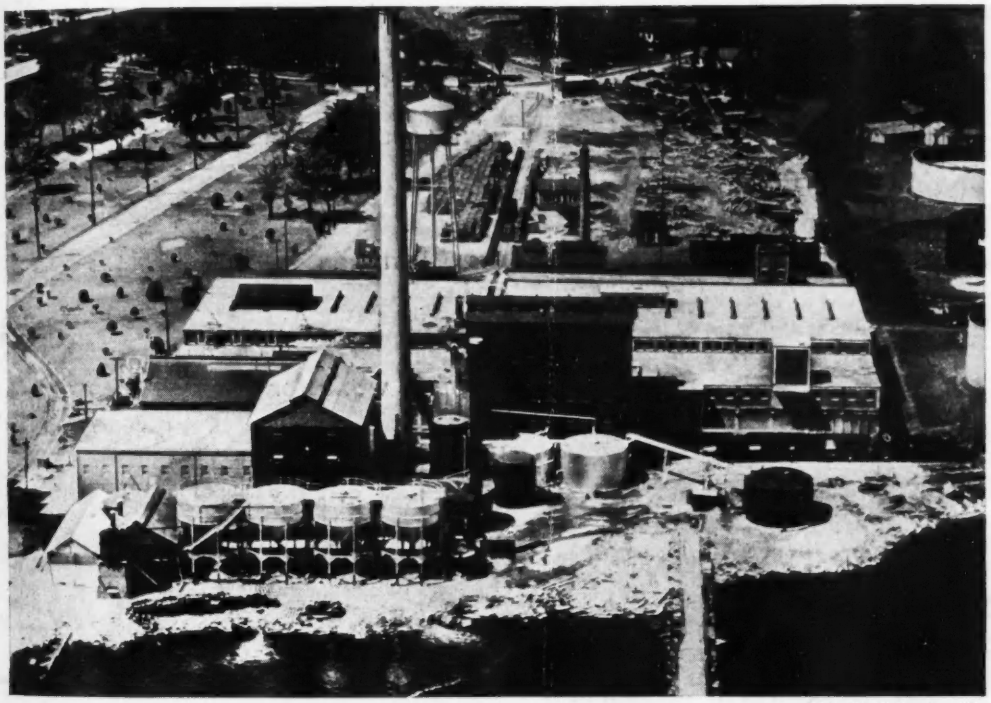


Photo by Sledge, Jax, Fla.

NATIONAL CONTAINER CORP. JACKSONVILLE MILL

JOHNSON & WIERK, Inc.

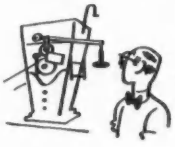
CONSULTING ENGINEERS

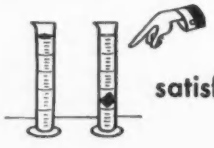
GRAND CENTRAL TERMINAL BLDG. NEW YORK, N. Y.
246 STUART STREET BOSTON, MASS.

SEPT. 1 1938

Vol. CVI
No. 9

On Your Staff
but... *Not on Your Payroll!*

When you buy a Huyck Felt, you add to your staff a group of experts backed by 70 years of service to the paper  industry.

They study your equipment, your needs, your production problems. They design, especially for you, felts of just the right specifications for each job. And they continue to work, for you and *with* you, to provide in your mill continuous  satisfaction in felt performance. No wonder that with such service, Huyck Felts are the choice of leading papermakers everywhere.

KENWOOD WOOL PRODUCTS

F. C. HUYCK & SONS

KENWOOD FELTS • ALBANY, N. Y.

Entered as second class matter at the Post Office at East Stroudsburg, Pa., under the Act of Congress of March 3, 1879. Published every Thursday by the Lockwood Trade Journal Co., at 34 N. Crystal St., East Stroudsburg, Pa. Executive and Editorial office: 15 W. 47th St., New York, N. Y. Domestic subscription U. S. and possessions, $4.00 per year.

PAPER TRADE JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

Published Every Thursday by the LOCKWOOD TRADE JOURNAL CO., Inc.

Executive and Editorial Offices: 15 West 47th Street, N. Y. C.
Western Rep.—H. K. Vinton, 123 W. Madison St., Chicago, Ill.

The Contents of this Publication are Copyrighted

TABLE OF CONTENTS

A. P. & P. Association Holds Open Meeting 11
Agents of Hammermill Paper Co. Meet at Erie 12
Better Demand for Fancy Papers 12
Consolidated Produces New Coated Finish ... 15
New Goulds Centrifugal Pumps 15
Chicago Trade Encouraged by Rising Demand 16
H. E. Pratt Goes to Pejepscot Mill 16
Financial News of Pulp and Paper Industry .. 17
Crown Zellerbach Reports $970,055 17
United Paperboard Reports $36,781 17
American Box Board Expects Profit 17
A. H. Cochran to Open San Francisco Office 18
W. J. Lawrence Heads Bryant Paper Co. 18
C. E. Kinne Heads Bagley & Sewall 18
TAPPI Green Bay Meeting Plans Completed 20
S. A. P. I. Joint Golf Outing 20
Green's Economizer 22
Ralph Hall Goes With Paper City Co. 22
Construction News 24
A. S. C. Cellulose Division Meeting 25
Government Paper Bids 25

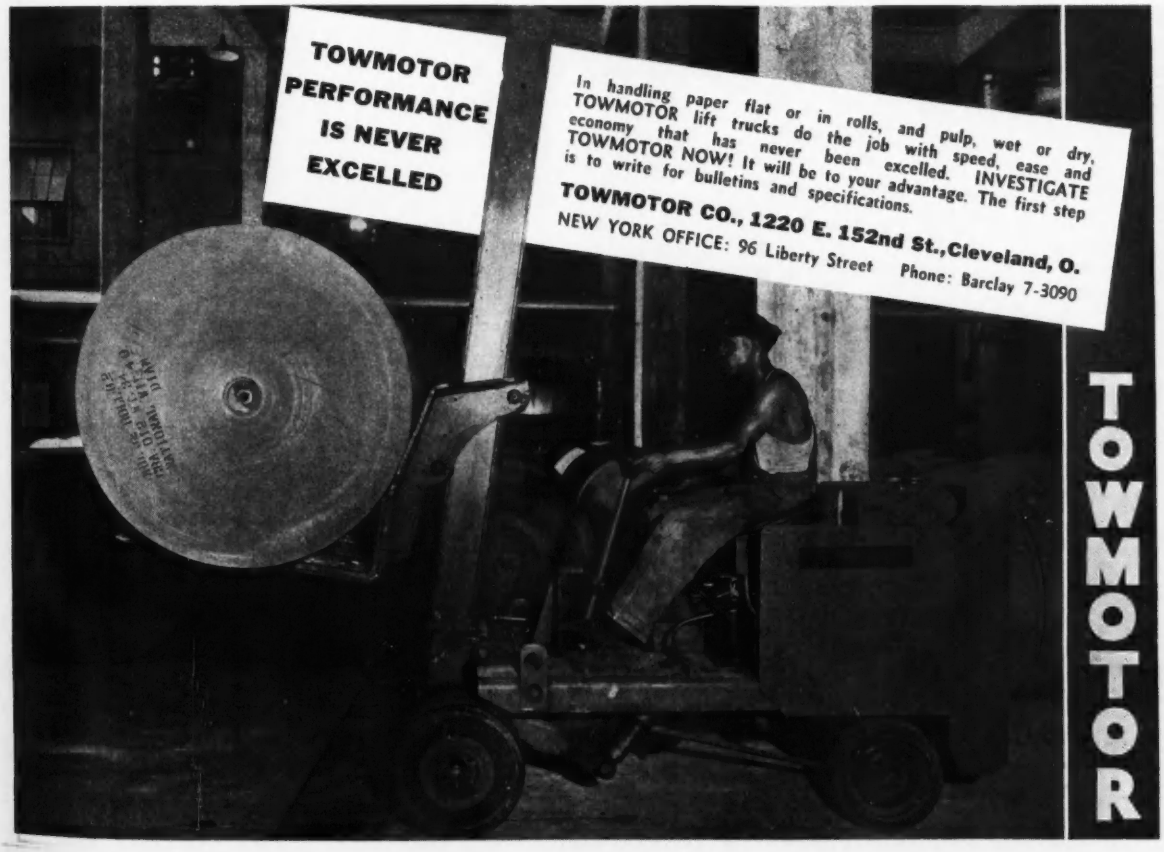
Editorial 26
Paper Making in 1835 27
Homer Eveland Made Superintendent 27
Production Ratio Report 27
Gets Patent on Continuous Beater 27

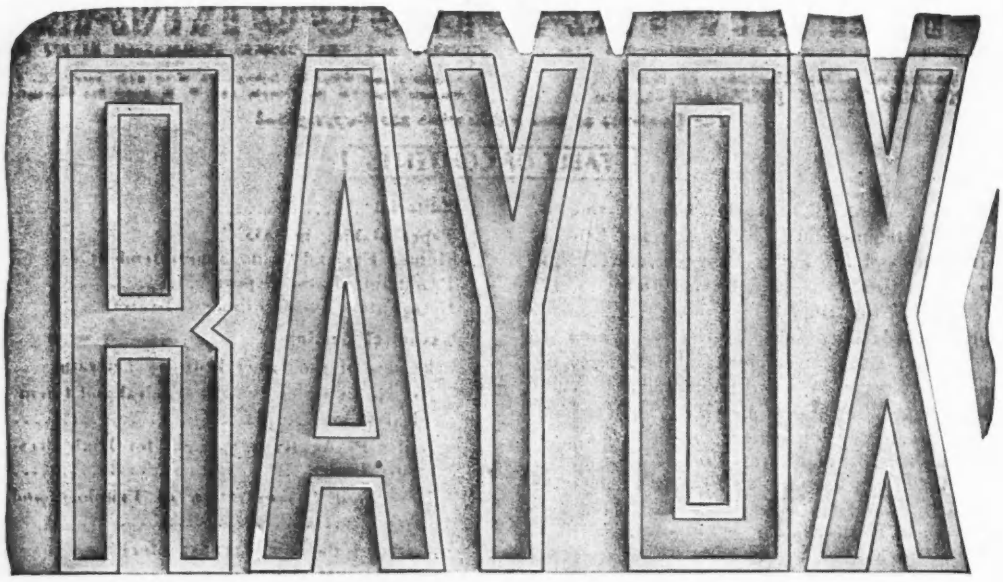
Technical Section

Review of the Paper Industry Literature .. 29
Newsprint From Pine Mechanical and Chemical Pulps 30
Boiler Feedwater Treatment for High Pressure Boilers 33
Degree of Gelatinization of Cellulose and Wood 38
Imports of Paper and Paper Stock 41
New York Market Review 43
Miscellaneous Markets 44
Market Quotations 46

The PAPER TRADE JOURNAL is indexed in Industrial Arts Index

Copyright, 1938, by the Lockwood Trade Journal Co., Inc.


TOWMOTOR
PERFORMANCE
IS NEVER
EXCELLED
In handling paper flat or in rolls, and pulp, wet or dry, TOWMOTOR lift trucks do the job with speed, ease and economy that has never been excelled. INVESTIGATE TOWMOTOR NOW! It will be to your advantage. The first step is to write for bulletins and specifications.
TOWMOTOR CO., 1220 E. 152nd St., Cleveland, O.
NEW YORK OFFICE: 96 Liberty Street Phone: Barclay 7-3090
TOWMOTOR



PURE TITANIUM DIOXIDE

For RUBBER LATEX
Compounding, and Vulcanizing Chemicals together with technical literature on their use

VANZYME
An Enzyme for Converting both Raw Corn and Tapioca
McNAMEE CLAY
Low Grit and Low Abrasion

●

R. T. VANDERBILT CO., INC. • 230 PARK AVENUE, NEW YORK

PAPER TRADE JOURNAL

Reg. U. S. Pat. Off.

SIXTY-SEVENTH YEAR

PAPER

Established Feb. 17, 1899
Consolidated Nov. 16, 1899
with PAPER TRADE JOURNAL.

Vol. CVII, No. 9 Thursday, September 1, 1938

PAPER

Established Sept. 21, 1918
Consolidated Feb. 19, 1925
with PAPER TRADE JOURNAL.

A. P. & P. Association Holds Open Meeting

Session of American Paper and Pulp Association At Waldorf-Astoria, New York, Considers Plans Relating To Fair Standards Labor Act and Other Questions of Regulatory Measures — Recommendations Adopted.

The American Paper and Pulp Association held an open meeting at the Waldorf-Astoria Hotel, New York on August 25, for the purpose of presenting the recommendations of the Technical Committee on the Fair Labor Standards Act of 1938, and for the discussion of such plans as may be required by the Association to present to the administrator and committee of new legislative laws and investigations, for the adequate protection of the whole industry. The importance of the Wages and Hours Act and the Federal investigation now under way and which is known as the National Economic Committee, were also considered. The threat of compulsory registration and payment of a fee for licensing owners of trade marks, brands, etc., now impending in other states than in Nevada, was also explained.

President Everest on Initial Problems

D. Clark Everest, president of the American Paper and Pulp Association, presided as chairman and briefly outlined the position of the industry and the major questions which the new legislative acts have brought forward and which must be met, not only by the paper industry but by all other industries. He pointed out that the movement of regulation by public agencies would play a more and more important part in industry in the future because of the new laws. He explained that the theory of the new regulatory measures was to promote the interest of the public, and while now in the development state, the industry must strive for a meeting of minds in order to obtain adequate protection of the rights of all divisions in the pulp and paper industry.

The Fair Labor Standards Act is now a statute and definitely fixes hours as well as minimum wages. The minimum wage provisions of this law are, Mr. Everest said, of little significance in the industry, while the question of hours was an important one. Unless an equitable adjustment can be made in negotiations of the Association with the Administrator of the law, the time and half overtime requirement may make some mills unproductive. Costs of regulation and costs of social security, he said, must be considered by the industry equally with all other costs.

In conclusion, President Everest urged that every mill send in immediately its wage structure. As some mills pay small wages and work long hours, it is necessary for them to send the necessary data to C. W. Boyce, secretary of the American Paper and Pulp Association, 122 East 42d street, New York at once, that the necessary steps may be taken to protect their interests. It was recommended and approved that the American Paper and Pulp Association, as the parent organization, should present the needs of all divisions and thus save time and avoid duplication of effort. Secretary W. C. Boyce was sanctioned to immediately assemble data for presentation to the committee at Washington.

Technical Recommendations Adopted

The recommendations of the Technical Committee of the American Paper and Pulp Association which met on August 23, was approved by the Board of Governors and the Executive Committee at a joint meeting prior to the open meeting. All of the ten recommendations were unanimously adopted. The full text follows:

Recommendations of the Technical Committee Concerning the Fair Labor Standards Act of 1938

The Technical Committee met on August 23, 1938 and as a part of its business considered the Fair Labor Standards Act of 1938 and its application to the paper and pulp industry. After careful study, the Committee makes the following recommendations:

1. The committee to be appointed by the Administrator should consist of nine (9) members; three representing the industry, three representing labor, three representing the public.

It is believed that a committee of this size will be large enough for adequate representation and small enough for efficient working and prompt action.

2. That the paper industry be represented by one over-all committee embracing paperboard, newsprint and all of the divisions of the American Paper and Pulp Association.

In arriving at this recommendation it was decided that pulpwood should be excluded because of its seasonal nature and that all converters should be excluded except those which are affiliated with the A. P. & P. A. It probably will be desirable for the A. P. & P. A. representative to have an advisory com-

(Continued on page 22)

Agents of Hammermill Paper Co. Meet at Erie

Prominent Paper Merchants From All Over the United States Confer With Mill Officials On Problems of Mutual Interest — Representative Bruce Barton Delivers Principal Address—Those Who Attended Meeting.

[FROM OUR REGULAR CORRESPONDENT]

ERIE, Pa., August 29, 1938—"I am not pessimistic about the long term outlook of the United States", said Representative Bruce Barton of New York in a talk at the twenty-seventh annual Conference with Hammermill Agents held here last week. Mr. Barton described the impressions of Congress he has gained in the past year.

President Behrend Opens Sessions

At the conference, one hundred and twenty paper merchants met with mill officials to discuss mutual problems. Mr. Behrend, president of Hammermill Paper Company, opened the sessions by stressing the importance of maintaining the principles that have guided the relationships of Hammermill and its agents for so many years. Mr. Behrend then introduced Mr. Barton.

Norman W. Wilson, first vice president and general manager of Hammermill reviewed present conditions in the paper industry. H. R. Baldwin, vice president in charge of sales, showed sales charts for each of the Hammermill papers and presented banners to the agents who have sold the largest tonnage of individual advertised lines in the past year. Mr. Baldwin conducted the general business and discussions of the meetings.

Introduces New Sales Film

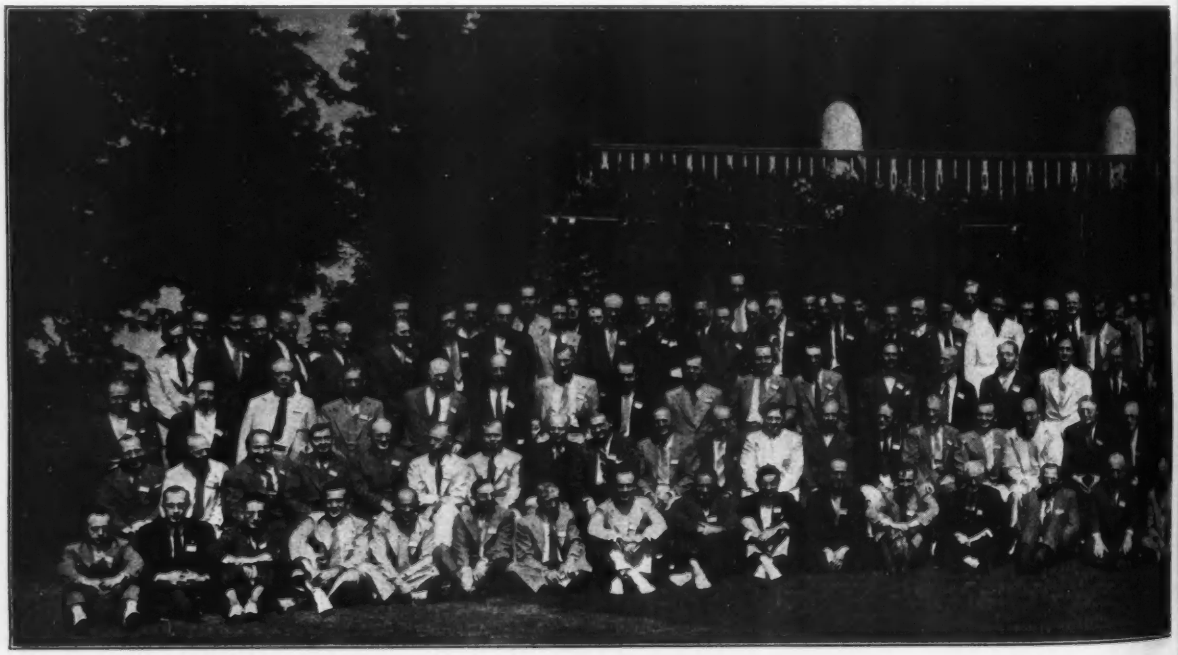
Eliot Wight, advertising manager of U. S. Envelope Company, Springfield, Mass.; introduced a new sales film to be shown the Hammermill agents' salesmen this fall. The film pictures the sales opportunities of Hammermill Bond Envelopes.

Hammermill advertising for the present and coming year was presented by A. E. Frampton, advertising manager and assistant general sales manager. J. F. Wuenschal, Hammermill's district sales manager for the Pacific Coast, brought greetings from the West Coast to the eastern merchants. William Woodbridge and G. P. Bothwell spoke about Hammermill sales opportunities.

Plans by Agents' Advisory Committee

Plans for the program of the meeting were made by the agents' advisory committee which met with mill executives at Mr. Behrend's home at Glenhill farm on Wednesday, August 24. The members of the committee present were: W. N. Stetson, Jr., of Storrs & Bement Company, Boston, acting chairman; E. P. Magel, Crescent Paper Company, Indianapolis; N. K. Woodward, Midwestern Paper Company, Kansas City; W. N. Schaefer, R. P. Andrews Paper Company, Washington, D. C.; Max Greenebaum, Beekman Paper & Card Company, Inc., New York; H. F. Petrequin, The Petrequin Paper Company, Cleveland; D. A. Hoadley, Carpenter Paper Company, Omaha; Victor Hecht, Zellerbach Paper Company, San Francisco, Cal.

To replace members whose terms have expired, the agents elected the following men to the advisory committee: F. P. Leslie, the John Leslie Paper Com-



PICTURE TAKEN AT THE 27TH ANNUAL CONFERENCE OF THE AGENTS OF

pany, Minneapolis; J. P. Cunningham, Bradner Smith & Co., Chicago; W. N. Stetson, Jr., Storrs & Bement Company, Boston. E. P. Magel, Crescent Paper Company, Indianapolis, was elected chairman.

New members of the agents' advertising committee were: L. V. Mulnix, Carpenter Paper Company. Grand Rapids; and Douglas Warner, O. F. H. Warner & Company, Inc., Baltimore.

Meetings Held at Kahkwa Club

The conference meetings were held at the Kahkwa Club. The business sessions took each morning with the afternoons given over to golf and other competitive games. The E. R. Behrend Golf Trophy was won for the coming year by E. R. Broderick of Muller and Phipps (Asia) Limited, New York.

J. M. H. Fitzgerald of Epes-Fitzgerald Paper Company, Columbus, S. C., won the Roger Brooks Taft Memorial Putter. This trophy is put up by the agents, who plan to offer similar memorials in future years.

Mexican serape blankets, presented by Elwin Walker, of Walker-Goulard-Plehn Company, Inc., New York, were won by E. K. Sachrist, R. F. McMahon, and F. E. Divine.

The following were the prize winners in the various events:

AGENT PRIZE WINNERS THURSDAY, AUGUST 25, 1938

GOLF—No. 1 Division, Low Gross, Harry Payne; Low Net, A. L. Schneider; Second Low Net, Bruce Barton. No. 2 Division, Low Gross, J. M. J. Fitzgerald; Low Net, E. Broderick; Second Low Net, E. L. Wood.

KICKERS HANDICAP—L. V. Mulnix.

OBSTACLE GOLF—First Prize, C. R. Smith; Second Prize, B. E. Reeves.

BOWLING—First Prize, George Clerk; Second Prize, Max Reinhold.

THE SELLING GAME—First Prize, G. Ernest; Second Prize, E. Mead; Highest Score, P. W. Eason. (Single Inning)

PARK A BALL—First Prize, R. E. Wilson; Second Prize, Wiley Baxter.

AGENT PRIZE WINNERS FRIDAY, AUGUST 26, 1938

GOLF—No. 1 Division, Low Gross, Dana Payne; Low Net, Arnold Russell; Second Low Net, W. S. Stetson, Jr. No. 2 Division, Low Gross, R. Johnston, Low Net, C. T. Roos; Second Low Net, R. L. Allison.

OBSTACLE GOLF—First Prize, T. S. Lathrop; Second Prize, J. Nacht.

BOWLING—First Prize, J. Alcorn; Second Prize, R. M. Clements.

THE SELLING GAME—First Prize, H. S. Kratz; Second Prize, A. W. Rhodes; Highest Score, J. Borrell. (Single Inning)

PARK A BALL—First Prize, Roscoe Taylor; Second Prize, M. Kiesewetter.

HAMMERMILL PRIZE WINNERS THURSDAY, AUGUST 25, 1938

GOLF—First Low Net, W. F. Bromley; Second Low Net, B. L. Kassing; Kickers 1st, H. L. Peckham; 2nd, F. W. Buss.

BOWLING—H. E. Obermanns.

PARK A BALL—A. Wright.

OBSTACLE GOLF—Harry Hahn.

SELLING GAME—George Smart.

HAMMERMILL PRIZE WINNERS FRIDAY, AUGUST 26, 1938

GOLF—First Low Net, M. Harrison; Second Low Net, H. R. Landers; Kickers 1st, S. Byron; 2nd, F. Wuenschel.

BOWLING—A. H. Croup.

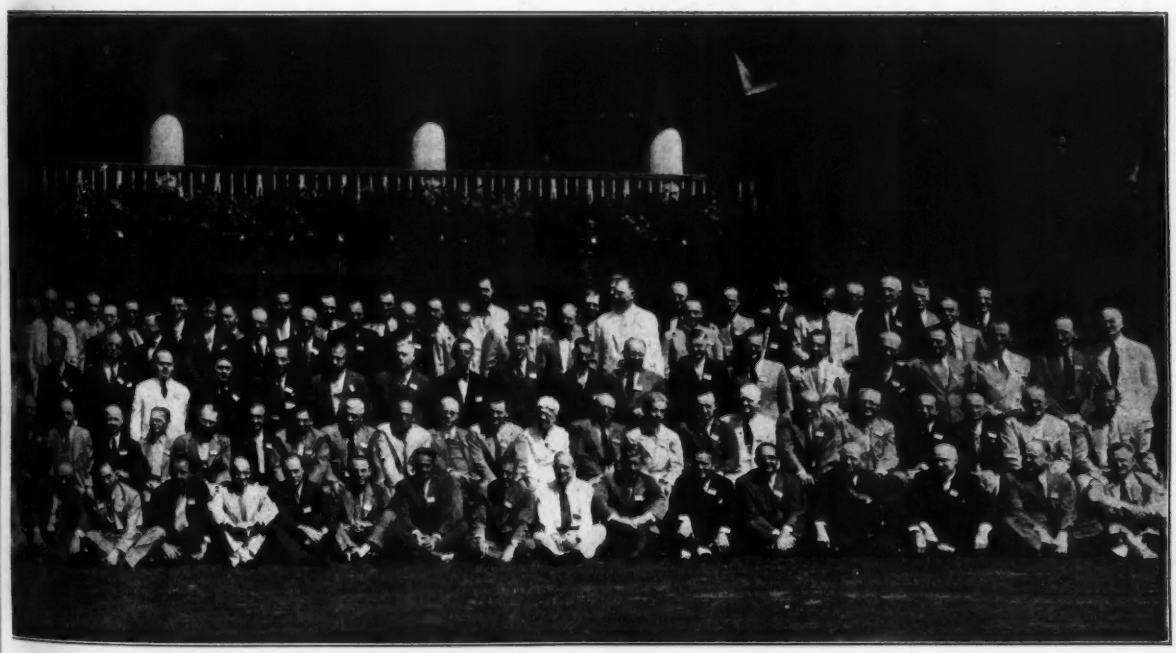
PARK A BALL—Harry Wilson.

OBSTACLE GOLF—A. B. Carmosino.

SELLING GAME—G. Richardson.

Those in Attendance

Martin L. Kratz, and H. S. Kratz, the Alling & Cory Company, Buffalo, N. Y.; James E. Alcorn, the Alling & Cory Company, Cleveland, Ohio; D. S.



THE HAMMERMILL PAPER COMPANY, AT ERIE, PA., AUGUST 25-26, 1938

Landau, the Alling & Cory Company, New York, N. Y.; W. J. Shaw, the Alling & Cory Company, Pittsburgh, Pa.; Richard M. Harris, and B. E. Reeves, the Alling & Cory Company, Rochester, N. Y.

R. P. Andrews and W. N. Schaefer, R. P. Andrews Paper Company, Washington, D. C.; B. R. Moore, Andrews Paper House of York, York, Pa.; M. Kiesewetter, Antietam Paper Company, Inc., Hagerstown, Md.; W. M. Baxter, Jr., the Baxter Paper Company, Inc., Baltimore, Md.; C. S. Lafferty, and R. L. Tillman, Beacon Paper Company, St. Louis, Mo.; G. A. Nauman, R. W. Roehm, and A. E. King, Beecher, Peck & Lewis, Detroit, Mich.; Max Greenebaum, Beekman Paper and Card Company, Inc., New York, N. Y.; Theodore Greenebaum, Beekman Paper and Card Company, Inc., New York, N. Y.

A. C. Nelson, John Boshart Paper Company, Duluth, Minn.; L. A. Ramaker, The Bouer Paper Company, Milwaukee, Wis.; Roscoe Taylor, Butler Paper Company, Inc., Fort Wayne, Ind.; Byron Gaines, The Capital City Paper Company, Springfield, Illinois; C. W. Dau, Carpenter Paper Company, Des Moines, Iowa; L. V. Mulnix, Carpenter Paper Company, Grand Rapids, Mich.; Dewey A. Hoadley, Carpenter Paper Company, Omaha, Neb.; G. E. Caskie, Jr.; Caskie Paper Company, Lynchburg, Va.

A. M. Miller, the Central Ohio Paper Company, Columbus, Ohio; A. F. Miller, the Central Ohio Paper Company, Toledo, Ohio; C. R. Braatsch, and C. Rasmussen, Chicago Paper Company, Chicago, Ill.; R. M. Clements, Clements Paper Company, Nashville, Tenn.; E. P. Magel, and Carl Rusie, Crescent Paper Company, Indianapolis, Ind.; John M. Knablein, James Bothwell, and F. Dana Payne, The Daka Paper Company, Erie, Pa.

A. L. Schneider, and J. M. Sturm, the Diem & Wing Paper Company, Cincinnati, Ohio; C. M. Yates, the Dudley Paper Company, Lansing, Mich.; G. J. Kuebel, Durico Paper Company, Erie, Pa.; H. S. Wuenschel, Durico Paper Company, Erie, Pa.; J. M. H. Fitzgerald, Epes-Fitzgerald Paper Company, Inc., Columbia, S. C.; T. H. Epes, Epes-Fitzgerald Paper Company, Inc., Richmond, Va.; Merton C. Flemings, Charles A. Esty Paper Company, Div., Worcester, Mass.; A. C. Thomas, F. A. Flinn, Inc., New York, N. Y.; A. W. Green, Green & Low Paper Company, Inc., New York, N. Y.; Donald Gardner, and Thomas C. Gregory, R. L. Greene Paper Company, Providence, R. I.

Fred Stutzman, and Willard J. Blake, Holland Paper Company, Inc., Buffalo, N. Y.; George S. Clerk, John B. Binley, and Sydney T. Jones, Hudson Valley Paper Company, Albany, N. Y.; E. A. Damhorst, Irwin Paper Company, Quincy, Ill.

H. T. Newell, Jackson Paper Company, Jackson, Miss.; H. G. Keffer, Johnston, Keffer & Trout, Harrisburg, Pa.; J. A. Carpenter, Kansas City Paper House, Div., Carpenter Paper Company, Kansas City, Mo.; D. C. Barry, Lathrop Paper Company, Inc., Newark, N. J.; P. W. Eason, and Thomas S. Lathrop, Lathrop Paper Company, Inc., New York, N. Y.; Eugene Parks, Lehigh Valley Paper House, Div. S. Walter, Inc., Allentown, Pa.

A. W. Leslie, the John Leslie Paper Company, Minneapolis, Minn.; D. J. Werner, Henry Lindenmeyr & Sons, New York, N. Y.; R. M. Hughes, Megargee Brothers, Scranton, Pa.; N. K. Woodward, Midwestern Paper Company, Kansas City, Mo.; W. D. Williams, Miller Paper Company, Inc., Louisville, Ky.; F. P. Appleton, Miller & Wright Paper Co., New York, N. Y.; Robert Schmidt, Miller & Wright Paper Co., New York, N. Y.; R. S. Johnston, Old Dominion Paper Company, Norfolk, Va.; A. D. Cleveland, E. C. Palmer & Co., Ltd., New Orleans, La.; Chas. M. Bleke, The Papercraft Company, St. Louis, Mo.; Ormond Freile, and W. Predmore, Paper Merchants, Inc., Philadelphia, Pa.; E. A. Petrequin, and H. F. Petrequin, The Petrequin Paper Company, Cleveland, Ohio.

Norman W. Fort, Jr., and George N. Ernest, The Thomas W. Price Company, Philadelphia, Pa.; Max Reinhold, the Reinhold Card & Paper Company, New York, N. Y.; A. W. Rhodes, S. P. Richards Paper Company, Atlanta, Ga.; Ernest C. Mead, Richmond Paper Company, Richmond, Va.

A. W. Russell, and Bulkeley Van Schaack, The Rourke-Eno Paper Company, Inc., Hartford, Conn.; J. P. Cunningham, Bradner Smith & Co., Chicago, Ill.; R. S. Tyler, Southeastern Paper Company, Louisville, Ky.; G. R. Likins, Springfield Paper Company, Springfield, Mo.; W. N. Stetson, Jr., and J. H. Brewer, Storrs & Bement Company, Boston, Mass.; John D. Swigart, E. R. Carpenter, Swigart Paper Company, Chicago, Ill.

Stuart Caplin, Union Card & Paper Company, New York, N. Y.; J. Nacht, Union Card & Paper Company, New York, N. Y.; C. R. Smith, Van Reed Paper Company, Reading, Pa.; W. W. McDowell, D. L. Ward Company, Philadelphia, Pa.; E. W. Julian, Western Newspaper Union, Omaha, Neb.; R. A. Secrest, Central States Envelope Company, Indianapolis, Ind.; F. B. Korbel, Paul Thayer and E. L. Wood, P. P. Kellogg & Co. Div., Springfield, Mass.; E. L. Wight, R. L. Allison, E. V. Johnson, and F. H. Sellars, United States Envelope Company, Springfield, Mass.

C. T. Roos, National Envelope Company, Div., Waukegan, Ill.; C. J. Babcook, S. A. Harned, Walter E. Palmer, Harry Payne, and Bruce Barton; Batten, Barton Durstine & Osborn, Inc., New York, N. Y.

C. C. Walden, Jr., Walden, Sons & Mott, New York, N. Y.; Calvin Wilson, R. D. Wilson Sons & Co., Clarksburg, W. Va.; Ralph E. Wilson, Jr., R. D. Wilson Sons & Co., Clarksburg, W. Va.; V. E. Hecht, Zellerbach Paper Company, San Francisco, Cal.

J. Borrell, and Elwin Walker, Walker-Goulard-Plehn Company, Inc., New York, N. Y.; E. R. Broderick, Muller & Phipps (Asia) Limited, New York, N. Y.; W. H. Howe, Hubbs & Howe, Buffalo, N. Y.; H. E. Allen, P. S. Manley, and C. J. Voneman, The Dobeckmun Company, Cleveland, Ohio; George T. Mead, *Erie Daily Times*, Erie, Pa.; A. W. Stark, *Erie Dispatch Herald*, Erie, Pa.; S. Walter, Inc., Philadelphia, Pa.

Better Demand for Fancy Papers

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 29, 1938—A slight improvement developed in the demand for fancy papers, including box coverings last week. It is reported that candy manufacturers have not made any shipments of their products in the last six weeks, approximately, on account of the hot weather, so that there has been less call for box coverings from the confectionery industry.

Consolidated Produces New Coated Finish

New Patented Product Announced By Consolidated Water Power & Paper Co. Provides English Finish On Coated Sheet — Patent Rights Sold To Bowater, Lloyds and Other Foreign Mills—Other Industrial News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., August 29, 1938—For the first time in the annals of paper production, a coated sheet has been put on the market in English finish. The product has just been announced by the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., and the trade-mark is "Production Coated English Finish." Because of its ability to produce halftones up to 120-line screen with outstanding effect, the new paper is expected to enjoy a wide market immediately.

Production Coated E. F. is manufactured under Consolidated's revolutionary invention of coating both sides directly on the paper machine. The process gives uniform coating to both sides so all halftone work is uniform. A broadside was issued to the trade recently in colors, printed on 60-pound sheets of the new product.

Patent rights on the Consolidated coating process have been sold to date to the following European mills: Bowater-Lloyd's, Sittingbourne, England; Star Paper Company, Feniscowles, England; Papeteries de Chappelle, Paris; and Papeteries de Cham, at Cham, Switzerland. Two score magazines in England are now using Consolidated coated papers, including Queen, Pearsons, Field, Popular Flying, Gardening, and Fishing Gazette.

D. C. Everest Active in Sales Campaign

D. C. Everest, vice-president and general manager of the Marathon Paper Mills Company, was the leading figure in the recent campaign at Wausau, Wis., carrying out the theme, "Sales Mean Jobs." He spoke to an immense audience at Marathon park, the culmination of a campaign to stimulate business.

Mr. Everest described the sudden drop in business experienced last year as "the sharpest decline we have ever witnessed." He pointed to sales as "the most intricate cog in the gearing of business today." Sales of consumer goods, he added, will start the wheels of the capital goods manufacturers as well.

"In my opinion," said Mr. Everest, "the bottom has been reached and now is the time to buy. There is more money available for business use than ever before. All we need is confidence in the business situation and we will go ahead at a surprising rate."

Kimberly-Clark's Safety Day Program

Kimberlay-Clark Corporation's first annual safety day exhibition and program was held in connection with the annual picnic of employees of the Lakeview and Badger-Globe mills at Neenah, Wis. Sunday, August 28. The gathering was held at Lakeview mill park under auspices of the Lakeview Recreation Association.

Exhibition booths were erected around the park showing murals and posters drawn by employees. They depicted hazards in the mills and on the highways, and were judged for prizes. Safety posters drawn by school children also were shown. A large tent was provided, where a safety program was conducted under the direction of C. C. Smith of the personnel department. Safety acts were presented by mill groups, and short talks were given by mill officials. Safety songs with original verse written by employees were used.

Gold pins were presented as a part of the program to employees with 25 years of continuous safety service. These were given by Ernst Mahler, executive vice-president. The safety awards were made by F. J. Sensenbrenner, president.

A picnic dinner was served at noon, and a concert was furnished by a band made up of Lakeview mill workers. The program also included a baseball game and other athletic contests. Dancing concluded the day's events.

Wausau Paper To Use Rebuilt Dam

Permission has been given the Wausau Paper Mills Company to use its rebuilt timber crib dam here for two years, the Wisconsin Public Service Commission at Madison, Wis. announced. This will enable the mill to operate steadily until its dam and hydro-electric plant which collapsed May 29 can be rebuilt.

The older dam was hastily repaired and put back into use to provide some power, furnish a log pond, and furnish water for operations. The commission's order requires that plans for a new concrete dam be filed before December 16, 1938. The company has not announced its plans for the new construction.

Mills Cooperate to Annex Town of Preble

The Northern Paper Mills and the Hoberg Paper Mills, Inc., are cooperating with property owners of the town of Preble to bring about annexation of the township to the city of Green Bay, Wis. When their signatures were added to a petition, it appeared certain the common council of Green Bay would grant the request so the mills can enjoy city fire protection and other advantages.

Kellogg-Goeres Nuptials

H. Burton Kellogg, Jr., chemical engineer for the Kimberly-Clark Corporation at Neenah, Wis., and Miss Maxine Goeres of Appleton, Wis., were married Saturday evening, August 20 at the home of the bride's parents. They are spending a two-week honeymoon in northern Wisconsin and Canada and will reside at Neenah.

New Goulds Centrifugal Pumps

Goulds Pumps, Inc., Seneca Falls, N. Y., announces a new bulletin describing their new line of Fig. 3390 Centrifugal Pumps. These pumps are two stage with opposed, hydraulically balanced Impellers for heads up to 1000 feet. The new bulletin which gives complete information may be had free on request.

Chicago Trade Encouraged By Rising Demand

Volume Reported As Materially Higher Than Last Year With Sulphite and Fine Papers Sharing In Upturn — Mid-West Plans for National Paper Trade Association Convention On September 19-21—Other News.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., August 29, 1938—Increasing strength in the waste paper market, taken on all sides as an indication of revival in the printing trades and in industry in general, is the only outstanding characteristic of the local paper market this week. Mixed papers, in particular, are reported as the bellwethers during the present situation. Meanwhile, other markets are again reported to be more or less "marking time" as the entire business world hopes for definite signs of an upturn immediately following Labor day. However, volume is materially ahead of last year in most lines with quality fine papers and including most grades of sulphites sharing in the upturn. Kraft papers, likewise, are branching out in wider volume though the price range is reported as restricted in a narrow channel. Book papers assumed a more healthy tone as the Fall business period nears while covers were also more active. Groundwoods were held to be "favorable" though there was less optimism reported in the newsprint market. Paperboard business was said to be definitely better with a strengthening undertone easily discernable.

Awards in Crocker-McElwain Contest

An Illinois printer and a Chicago paper salesman received awards in the recent third annual contest sponsored by the Crocker-McElwain Company. Awards in the Certificate Bond Letterhead rating contest went to the Pioneer Publishing Company of Oak Park, Illinois, which won the award for fourth prize and to B. J. Crosby of the Messinger Paper Company who was the salesman representing Messinger and the Crocker-McElwain line. The contest interested nearly 8000 entries who, according to local reports, provided a splendid display of high grade letterheads with a sound and practical merchandising theme.

Chicago Plans N.P.T.A. Program

Chicago jobbers, salesmen and manufacturers representatives are already making plans for the most successful National Paper Trade Association meeting yet held in the city. With headquarters again planned for the Stevens Hotel on September 19-21 inclusive, the three day affair will be headlined by a renewal of the exhibit program, concentrated into exclusive space and open only to registered parties definitely interested in what is offered. Meanwhile both the fine and wrapping paper divisions are developing a program covering merchandising and distributive conditions, mill policies, the market outlook and merchandising methods. It is expected that the program for codification of trade practices, a major theme with the Salesmens Association of the Paper Industry, will find an important spot on the program along with new interpretations of the Robinson-Patman Act and the Fair Labor Standards Act and its effect upon the industry as a whole. Meanwhile, the midwest division of the Salesmens Association has perfected plans for the use of two courses at the Olympia Fields Country Club for the annual golf outing on September 21.

Bermingham & Prosser Expand

A courageous move indicating confidence in the business picture has recently been reported to have been taken by Bermingham & Prosser, 128 S. Sangamon Street, Chicago. The well known Chicago firm with branches in other cities plans the addition of 95 new lines a part of which have already made their way into the comprehensive catalog recently issued. To make room for thousands of new items either already added or planned, the company intends to take over several additional floors of the building in which it is now located. Eventually, it is reported entirely possible that the entire building will be utilized to house the rapidly growing Chicago unit. The expansion program, a tribute to the courage and resourcefulness of Bermingham & Prosser, is under the direct supervision of J. C. "Cliff" Marvin, Chicago manager who in the five years he has been in this city has aided materially in the business improvement which made possible the move above reported.

Chukerman and Commonwealth Alliance

A closer alliance of interests between J. Chukerman & Sons and the Commonwealth Paper Converters Company, was arrived at through a more direct financial interest by the Chukerman organization in the Commonwealth structure reported this week. Both concerns are widely known in the coarse paper and allied supply field. New officers elected include Jacob Popper, president; David Moline, vice president; William Chukerman, former president of the Chicago Paper Association, treasurer; I. Chukerman, secretary and Jacob Chukerman, a member of the board of directors.

Better Business Forecasted in Middle West

More appreciable signs of improvement in the paper and printing industry which run contrary to the general trend in most lines are reported by the seventh federal reserve district comprising the States of Wisconsin, Michigan, Illinois, Indiana and Iowa. The 748 reporting firms showed a total of 72,012 wage earners or an increase of 1.9 per cent for the week of July 15 compared to the week of June 15. At the same time a total of $2,019,000 in earnings was reported, an increase of 3.6 per cent covering the same period. For the total of ten manufacturing groups reporting wage earners declined 3.2 per cent while earnings declined 3.1 per cent.

H. E. Pratt Goes To Pejepscot Mill

H. E. Pratt, who was formerly assistant superintendent at the Bowdoin Mill of Pejepscot Paper Company, has been advanced to the position of superintendent of the Pejepscot Mill, of the Pejepscot Paper Company, located at Pejepscot Mills, Maine.

Financial News of Pulp and Paper Industry

Crown Zellerbach Corp. Report Net Profit of $970,055 for Three Months —United Paperboard Co. Reports Net Profit of $36,781 for Year To May 28 — West Virginia Reports Net Profit of $231,738 for Nine Months.

NEW YORK STOCK EXCHANGE

High, Low and Last for the Week Ending August 31, 1938

	High	Low	Last
A. P. W.	3	3	3
Armstrong Cork Co.	45¼	41	43¼
Celotex Corp.	25⅜	22⅛	22¼
Celotex Corp., pf.	67	66	66½
Certain-Teed Products Corp.	10¾	8¾	10
Certain-Teed Products Corp., pf.	41¼	38	38½
Champion Paper & Fibre Co.	26	23	23
Champion Paper & Fibre Co., pf.	97	97	97
Congoleum-Nairn Co.	26⅞	24¾	26⅛
Container Corp. of America	16⅝	14⅝	15
Continental-Diamond Fibre Co.	10¼	8⅞	8⅞
Crown-Zellerbach Co.	13⅛	11¾	12⅜
Crown-Zellerbach Co., pf.	78	78	78
Flintkote Co.	24½	21¼	22⅝
Robert Gair	4¾	4⅛	4¼
Robert Gair, pf.	14½	14½	14½
International Paper & Power	10⅛	8¾	9¼
International Paper & Power, pf.	44½	38¾	39¾
Johns-Manville Corp.	98¾	92¾	96⅛
Johns-Manville Corp., pf.	128	128	128
Kimberly-Clark Corp.	28	28	28
MacAndrews & Forbes	29	29	29
Masonite Corp.	57⅛	50½	52¼
Mead Corp.	14	12¼	12¼
Mead Corp., pf.	66¾	66¾	66¾
Paraffine Companies, Inc.	47	46	46
Paraffine Companies, Inc., pf.	99½	99⅛	99⅛
Ruberoid Co.	29	25⅞	27½
Scott Paper Co.	48⅜	47	47¼
Sutherland Paper Co.	30	28½	30
Union Bag & Paper Corp.	14⅝	12⅜	12⅞
United Paperboard Co.	7½	7	7
U. S. Gypsum Co.	97½	94	97
U. S. Gypsum Co.	170	168	168

NEW YORK CURB EXCHANGE

High, Low and Last for the Week Ending August 31, 1938

	High	Low	Last
American Box Board Co.	9¾	9	9½
Brown Co., pf.	26	24¼	24¼
Great Northern Paper	30	29	29
St. Regis Paper Co.	3⅜	3	3⅜
St. Regis Paper Co., pf.	57½	57½	57½
Taggart Corp.	6	5½	5½

Crown Zellerbach Reports $970,055

The Crown Zellerbach Corporation, paper manufacturer, and its subsidiaries reported last week a net profit of $970,055 for the three months ended on July 31. This was after depreciation, depletion, interest and taxes and after deducting the minority stockholders' proportion of the net profit of Pacific Mills, Ltd. The profit was equivalent to 13 cents a share on 2,261,199 common shares outstanding after dividend requirements on the $5 new cumulative convertible preferred stock. For the corresponding three months of last year net profit was $2,507,711, or 81 cents a share on the common stock.

Net sales for the quarter to July 31 were $11,732,900, compared with net sales of $14,172,051 for the same quarter in 1937.

United Paperboard Reports $36,781

The United Paperboard Company, Inc. and Subsidiaries reports as follows for the year to May 28: Net profit, $36,781, equal to $3.01 a share on 12,203 shares of 6 per cent non-cumulative preferred stock, compared with a net profit of $150,684, equal, after preferred dividend requirements, to 30 cents a share on 240,000 common shares, for the year to May 29, 1937. Net sales for the year totaled $2,360,372, against net sales of $3,149,883 for the year to May 29, 1937.

American Box Board Expects Profit

Despite a falling off in sales this year and general weakening of box board and container prices, American Box Board Company is expected to show a profit for the fiscal year ending November 26, 1938. It is not likely, however, that earnings will be sufficiently large to warrant payment of a year-end dividend on the common stock. In the year ended November 27, 1937, net profit was $356,892 or $2.21 a share on 125,363 shares of common stock.

Sales volume thus far in the current fiscal year is understood to have been about 35 per cent under volume for the corresponding period of the previous fiscal year, although an improvement has been noted in the last few weeks. For the balance of the year, comparison with last year should be increasingly more favorable, as sales fell off sharply in the closing months of 1937.

The company is currently engaged in a $250,000 expansion and modernization program which includes installation of a new $110,000 boiler and revamping of one mill for the manufacture of light colored box board for the carton trade, not heretofore supplied by American Box Board Company. Power costs are expected to be considerably reduced by the new boiler. Funds for the expansion program have been obtained through a five-year bank loan.

RFC Loans for Paper Concerns

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 31, 1938—During the month of July the Reconstruction Finance Corporation granted loans to a number of business and manufacturing firms.

Among those of interest to the paper industry were included the following: Keith Paper Company, Turners Falls, Mass., $250,000; Paper Container Manufacturing Company, Chicago, Ill., $12,000; Dunn Sulphite Paper Company, Fort Huron, Mich., $400,000; Metropolitan Paper Box Company, New York City, $5,000; and Pacific Straw Paper and Board Company, Longview, Wash., $40,000. In none of these cases had the actual cash been paid out by the RFC up to the end of July.

Imperial Paper Shows $380,200 Profit

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., August 29, 1938—A report made to stockholders of the Imperial Paper and Color Corporation at the annual meeting this week shows a net profit of $380,200.85 during the last fiscal year in comparison to $678,559.30 for the preceding year. The stockholders elected Karl R. McBride, president; Daniel H. Cowles, vice president; James H. Pearsall, treasurer, and Martin Wilmarth, secretary. In addition to the officers the board of directors will include: A. F. Brown, Louis P. Brown, A. S. Frazier, George S. Knapp, J. Edward

Singleton and Frank Van Sittert, all of Glens Falls, William Rohe, of New York City, and A. L. Emerson, of Warrensburg.

Cochran To Open San Francisco Office

Andrew H. Cochran, since 1933 with the Mead Sales Company, San Francisco and Chicago Sales Offices, is returning to the Pacific Coast about September 1. He will re-open an office in San Francisco representing a group of mills, including the Mead Sales Company, Dill & Collins Inc., Wheelwright Papers Inc., the Marvellum and Beveridge-Marvellum Companies of Holyoke, Mass., The Falulah Paper Company of Fitchburg, Mass., the Pejebscot Paper Company of Brunswick, Maine and The Curtis Paper Company of Newark, Del.

Mr. Cochran is well known among the paper trade of the Pacific Coast, having been identified with it in a sales capacity for both mills and merchants since 1923. Announcement of the location of the office in San Francisco will be made shortly after September 1.

West Virginia Reports $231,783

The West Virginia Pulp and Paper Company and Subsidiaries reports as follows for the nine months to July 31: Net profit, $231,738, including a credit of $11,846, representing a portion of the valuation reserve for marketable securities charged against the income account in prior years, equal to $1.49 a share on 155,830 shares of 6 per cent cumulative preferred stock, excluding 7,411 shares held in the treasury.

R. L. Snideman Made President

ELKHART, Ind., August 27, 1938 — Richard L. Snideman has been named president of American Coating Mills, Inc. The retiring president, C. C. Colbert, who has headed active management since 1910, was named chairman of the board. The former Illinois Carton and Label Company of Chicago has been absorbed by the local firm.

Schumacher Reports $33,942

Schumacher Wall Board Corporation reports as follows for the quarter to July 31: Net profit, $33,942, equivalent to 30 cents a share on 66,000 common shares, compared with a net profit of $17,550, or 4 cents a common share, for the corresponding quarter of last year.

S. D. Warren Co. Declares Dividend

At a meeting of the board of directors of the S. D. Warren Company, held August 26, it was voted to declare a dividend of 25 cents a share on the common stock, payable September 26 to stockholders of record September 17.

Nekoosa-Edwards Report Profit

The Nekoosa-Edwards Paper Company reported as follows for the period from January 1 to July 16: Net profit, $30,324, compared with a net profit of $302,447 for the period January 1, 1937, to June 30, 1937.

W. J. Lawrence Heads Bryant Paper Co.

KALAMAZOO, Mich., August 29, 1938— William T. Schmitt president and general manager of the Bryant Paper Company submitted his resignation to the Board of Directors to take effect immediately at a meeting of the board held August 24. The resignation was accepted and William J. Lawrence was named to fill the vacancy.

Mr. Schmitt's business interests in Detroit necessitates his devoting full time to them. He came to the Bryant Paper Company in 1931 to act in the capacity as advisor in the operation of the mill. In January 1932 he was elected vice president and director and named also as general manager to succeed the late Felix Pagerstecher. In 1937 he was elected president of the company to succeed W. B. Milham who was at that time elected chairman of the Board.

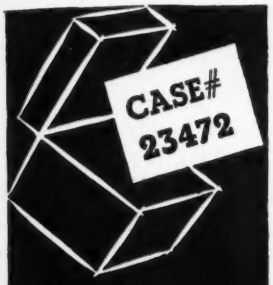
Mr. Schmitt's successor has been interested in the chemical and paper business in Kalamazoo for twenty-three years. When the Paper Makers Chemical Company established its branch in Kalamazoo Mr. Lawrence was the manager and later on when that company effected a merger of several chemical companies he was elected president of the corporation. Upon its affiliation with the Hercules Powder Company in 1931 he continued as president and was elected a director of the Hercules Company. When the Paper Makers Chemical Company was consolidated with Hercules in 1936 he was named vice president and general manager of the Paper Makers Chemical Company division. He resigned from the Company, May 1, 1937, to devote his entire time to his individual business interests.

Mr. Schmitt the retiring president was formerly connected with the American Writing Paper Company in an executive capacity. Just previous to his coming to the Bryant Company he was comptroller of the Chrysler Corporation and secretary-treasurer of the Murray Corporation in Detroit.

C. E. Kinne Heads Bagley & Sewall

WATERTOWN, N. Y., August 29, 1938—Announcement is made of the appointment of Clarence E. Kinne to the presidency of the Bagley & Sewall Company to succeed Charles W. Valentine, who resigned recently. The latter has been in poor health for some time. Mr. Valentine was made president after the death of Stuart D. Lansing in the early fall of 1927, being vice president prior to that time for a number of years. It is said that the change will result in a resumption of former selling policies which will involve an extensive contact with the paper industry.

Mr. Kinne first became connected with the company, which manufactures pulp and papermaking machinery, in 1893 when he started as a draughtsman. Later he was made head of the department and in 1898 became chief engineer of the company. In 1913 he was elected secretary and a director after the death of George A. Bagley and in the fall of 1927 he was made a vice president following the death of Mr. Lansing. In the spring of 1933 he was retired from active service but in the fall of 1934 he was re-elected vice president and brought back into active affairs of the company. Edward S. Lansing has been a co-vice president and will now be the only executive to serve in that capacity as plans of the concern do not call for a successor to Mr. Kinne.



From the Files of
HELLER & MERZ
Technical Service

COMPLEXIONS
that won't run . . . for Paperboard Containers

With new uses being found almost daily for colored paperboard containers, their future seems assured—except for the difficulty of preventing bleeding on exposure to moisture. This has been ruining their attractive appearance, staining the gloves, clothing and floors of purchasers.

For paperboard manufacturers who came to our Technical Service Division for help, good news was waiting. In anticipation of just such a need, a calendar stain for paperboard had been added to the Heller & Merz line of dyes. It covers a wide range of brilliant shades—and most important of all, insures greater fastness to bleeding than any previous calendar stain.

Obviously, the answer to every problem in the use of dyes may not be ready to hand as in this case. But the assistance of our Technical Service Division is yours for the asking, whether or not you now use Heller & Merz products. It may help you, as it has helped others on many occasions, to find a practical and perhaps more economical way to use dyes in your business. Simply write or wire our main office or nearest branch office, and a member of our staff will be sent promptly and without obligation to talk over your problems with you.

H & M DYES ARE BETTER BUYS

Heller & Merz

90 WEST STREET, NEW YORK, N. Y. • BOSTON CHICAGO • SPRINGFIELD, Mass. • PHILADELPHIA

DIVISION OF THE CALCO CHEMICAL COMPANY, INC.

A DIVISION OF AMERICAN CYANAMID COMPANY

TAPPI Green Bay Meeting Plans Completed

All roads lead to Green Bay, Wisconsin where the Fall Convention of the Technical Association of the Pulp and Paper Industry will soon be in full sway September 8, 9, and 10. This historical city, recognized the world over as a paper manufacturing center, is teeming with last minute activities in preparation for the TAPPI meeting and the first arrival of guests who will attend this epoch making gathering.

While the advance reservations have exceeded the fondest expectations of the committee, there are still suitable accommodations left at the Northland Hotel, convention headquarters, as well as the Beaumont Hotel and other nearby hostelries with adequate and suitable facilities.

A Complete and Varied Program

The Green Bay committee has already published and sent individually to TAPPI members the complete technical and social program that has been arranged for the Fall Meeting. A glance at the schedule indicates that it is a predetermined fact that the Green Bay meeting will be one of the most successful conventions ever sponsored by the TAPPI organization.

Exhibit Space Available

An unique printed program for the convention has already gone to press and will be available to TAPPI members when they register. A surprise is in store for all visitors when they receive their copy of this very elaborate program. There is still left suitable exhibit space in the Northland Hotel for manufacturers wishing to display their products and make the necessary contacts with TAPPI members attending the convention. The committee, however, urges manufacturers to reserve the remaining space by wire in care of R. Cords of the Northern Paper Mills, Green Bay, Wisconsin.

Harvest Festival Ball

A contract has been arranged for decorators to trim the Riverside Ballroom in a typical harvest scene for the Harvest Festival Ball Tursday evening, September 8. Guests are urged to bring their costumes for this affair if possible. Arrangements are being made to supply costumes at a concession booth in the Northland Hotel for any guests not bringing their own costumes. For the men the attire will be straw hats, bandanna handkerchiefs, overalls, or any other suitable garb symbolic of the farming element. For women the costumes will be gingham or farmerette dresses with sunbonnets.

Prizes for Special Events

Skeet shooting which is scheduled for Friday afternoon, September 9, will be a very popular event from all advance indications. First and second prizes will be awarded for the best scores in skeet shooting. In trap shooting there will be three special events with three major prizes. A large array of valuable prizes has been gathered by the local committee for the bridge and golf tournaments. All prizes will be awarded at the formal ball and banquet Friday evening, September 9 and will be available only to those who register.

Train Connections

Train connections out of Chicago for Green Bay can be made as follows:

Chicago & North Western—sleeping cars ready for occupancy at 9:30 P.M. standard time will be provided on train No. 117 leaving Chicago at 1:50 A.M. arriving in Green Bay 8:00 A.M. the next morning.

Chicago, Milwaukee, St. Paul & Pacific—Chippewa leaves Chicago 1:01 P.M. arriving Green Bay 4:47 P.M. The Copper Country limited leaves Chicago at 5:05 P.M. arriving Green Bay at 10:10 P.M. No. 19 leaves Chicago 7:25 P.M. and arrives Green Bay 11:59 P.M.

On either railroad the coach fare is $3.95 round trip $7.55. First class fares are $5.92 one way and $8.90 round trip. Parlor car chairs are 85 cents one way. Lower berths are $2.10 and upper berths $1.60.

Hotel Reservations

Last minute reservations by TAPPI delegates should be either mailed or wired to A. B. Hansen, General Chairman, Northern Paper Mills, Green Bay, Wis. Rates at the Northland Hotel, the convention headquarters, are $3.00 to $4.00 for single rooms with bath and $5.00 and $9.00 for double rooms with bath. At the Beaumont Hotel single rooms, $2.50 to $3.50 with bath, double rooms $4.00 and $5.00 with bath.

Prominent Speaker

A telegram was received by the local committee last week from C. A. Dykstra, president of the University of Wisconsin, confirming arrangements that he will speak at the Friday evening, September 9 ball and banquet. Mr. Dykstra is a nationally known speaker and was formerly City Manager of Cincinnati, Ohio. He has just completed a tour of Europe and will come direct to Green Bay for his speaking engagement at the TAPPI Convention. It is expected that he will touch upon his tour of Europe in his talk Friday evening.

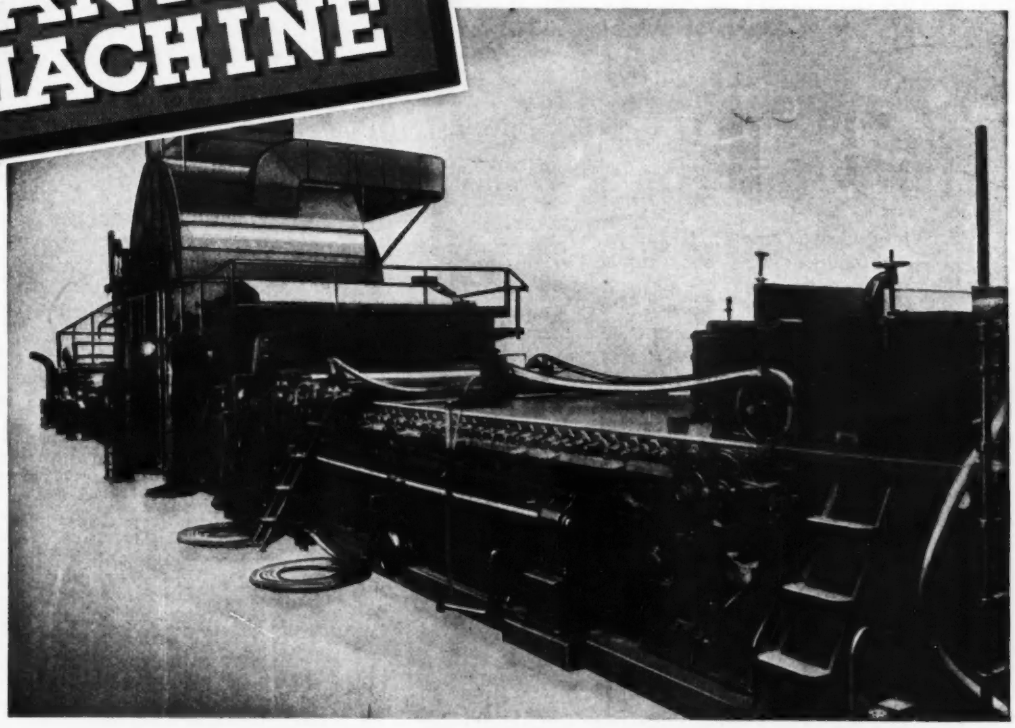
S.A.P.I. Joint Golf Outing

The golf committee of the Salesmen's Association of the Paper Industry, 122 East 42d street, New York, N. Y., has arranged with the Paper and Twine Club, and the New York Paper Trade Association for a joint golf outing at Beth-Page State Park, Long Island, on September 15. This is a gala event and all persons engaged in the paper industry and their friends are invited to attend. A fee of $5 covers the green fees and a steak dinner at night. Luncheon is extra. Early reservations are requested by the golf committee which is composed of E. R. Lyman, chairman, Norman Beardsley, Arthur Ericsson, Bob Estes, Frank Hopkins, Harold Moley and Joe Moses.

Sabin Robins Paper Co. Reports Profit

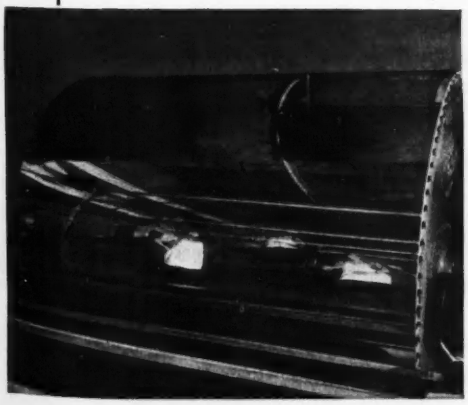
The Sabin Robbins Paper Company, reports as follows for the year to June 30: Net profit, $51,339, compared with a net profit of $144,210 for the year to June 30, 1937.

THE Beloit YANKEE MACHINE



● **The Beloit Yankee Machine furnishes an economical easy means of diversification. No other machine has the all-around adaptability to fit the needs of mills making specialty papers, both light and heavy weights.**

The machine is provided with all the latest features: Removable Fourdrinier ...High Speed Super Shake...Suction Rolls...High Pressure Dryer...Hypoid Drive, etc.



Beloit has developed a special alloy metal and special grinding and polishing process to produce the close grained, hard mirror finish shown in this photograph. This is a result of Beloit's many years of experience in building practically all the Yankee machines in this country.

Beloit has also recently developed a high pressure Yankee dryer to meet the demand for maximum production.

THE BELOIT WAY IS THE MODERN WAY

BELOIT IRON WORKS • BELOIT • WIS.

Attend TAPPI Convention, Green Bay, Wisconsin, September 8-9-10

A. P. & P. Association Holds Open Meeting

(Continued from page 11)

mittee from the industry. This can be provided later, however, and was not considered as a matter for decision at this time. Because of the union and non-union condition in the paper industry it is expected at least two of the three labor committee will be from the American Federation of Labor. The feasibility of an over-all committee has not been discussed with the National Paperboard Association or the Association of Newsprint Manufacturers of the United States, but the Technical Committee believes that it is highly desirable to have unified representation and a simplified committee structure for satisfactory operation under the Act.

3. The industry should be prepared to make a definite recommendation with respect to the minimum wage provision and to this end definite data on prevailing wages should be assembled immediately and compiled in such a manner that a proper minimum rate can be established.

Members of the various Divisional Associations should be advised that they will be asked to furnish data on the prevailing wage rates and working hours in their mills, and impressed with the need for thorough and prompt cooperation. The Manufacturing Subcommittee provides an excellent medium for the collection of this data.

4. That the industry favor a hiring rate for beginners (learners) ten per cent (10%) below the established minimum and that employees hired at a rate below the minimum be increased to the established minimum not later than three months from the date of hire.

5. Effort should be made to secure from the Administrator regulations granting flexibility to work additional hours at straight time when necessary:

(A.) To avoid a shut-down during the temporary absence of a relief worker.

(B.) While working for employees who are absent on vacations.

(C.) When employees arrange between themselves for time off.

(D.) When doubling up is necessary during the training period of employees in the case of a definite vacancy created by a separation, promotion, transfer, or demotion.

This recommendation is made in order that:

(1) The industry will not be penalized by overtime payment on situations over which they have no control, and

(2) Employees will be permitted a desired latitude for interchange between tour partners to facilitate time off for sickness, vacations, and the requirements of normal life, and

(3) The industry, in the interest of economic operation, can organize and schedule crews and work so that the penalty of time and one-half will be avoided. (The switching of employees from one job to another or from one schedule to another will, in the opinion of the committee, cause much dissatisfaction among employees.)

6. That an effort be made to secure from the Administrator an interpretation which will permit the following fluctuating operations to be classed as seasonal: (A.) Wood room, groundwood and related operations which are affected by fluctuations in water power.

(B.) Wood Yard, unloading and storage operations which fluctuate in accordance with pulpwood cutting and shipping.

(C.) Other operations which might be termed seasonal.

7. That Section 13 of the Act be so interpreted that foremen and others engaged in a bona fide *supervisory* capacity be exempt from the provisions of Section 6 and Section 7 of the Act.

8. That Section 13 of the Act be so interpreted that engineers, chemists and nurses engaged in their professions be exempt from the provisions of Section 6 and Section 7 of the Act.

9. That specific ruling be obtained from the Administrator exempting office employees from the provisions of the Act.

In making this recommendation careful consideration was given to other classes of employees such as engineers and firemen, construction and structural crews, maintenance and repairmen, watchmen, yard crews, hydroelectric operators, janitors and caretakers, etc. The Committee believes that it would complicate matters considerably to request exemption for any or all of these classes and that the confusion and reactions which would attend such a request would weaken the position of the industry. Such exemptions might cause dissatisfaction because of possible inequalities of income among working men engaged at the same base rate. It is deemed extremely necessary, however, to ask for an exemption of office workers from this Act.

10. All allied operations conducted by the mills in their plants should be included in the regulations promulgated for the paper industry. (Allied operations such as chemical operations for manufacturing by-products, converting operations, printing etc., will in every probability be considered as entitled to the same basic minimum wage rate.)

Green's Economizer

Bulletin No. 167 issued by The Green Fuel Economizer Company, Inc., Beacon, N. Y., describes Green's Ringstay-Type Economizer. By erecting the economizer in the main flue between the boilers and the stack, it utilizes the waste heat represented by the hot gases escaping through the flue. The company states that the Ringstay-Type Economizer has been designed to meet the higher boiler pressures now in use and that by its installation the increased capacity or average saving varies from 10 to 15 per cent, depending on plant conditions, though in some cases greater savings have been made.

Ralph Hall Goes With Paper City Co.

HOLYOKE, Mass., August 29, 1938—Ralph Hall, for a number of years with the American Writing Paper Company, Inc., is now with the Paper City Manufacturing Company, converters of box papers, greeting card papers, cut foils and cut cards. Mr. Hall called on the New England trade last week, to whom he was introduced by E. P. Driscoll, head of the Paper City Manufacturing Company.

Paper and Cordage Men Play Golf

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., August 29, 1938—The Philadelphia Paper and Cordage Association held its August golf tournament at Pine Valley Country Club, Clementon, N. J., on Wednesday, August 24th. With smiling skies overhead the members enjoyed perfect golf weather, and the Association was well represented.

The low gross score for the day was turned in by Arthur Brosius of Satterthwaite-Cobaugh Paper Company, who had an 84 and an 81. The runner-up for low gross was R. Jenkins, who turned in a 94-82. The prize for the low net score for 36 holes was won by H. F. Marquardt, while the low net score for 18 holes was won by N. G. Foraker. Kickers Handicap prize was won by S. W. Mulholland of the Frank W. Winne & Son, while the distinction of having the highest score of the day went to R. Knox, who turned in a gross score of 166.

In addition to the regular prizes awarded by the Association, Garrett-Buchanan Company donated 2 Lawson-Little golf clubs. These were won by Arthur Brosius and S. W. Mulholland. The semi-final rounds were played by possession of the Buffalo Envelope trophy. The final play-off for this grand prize will be played in September.

After an ideal day of golf, the members gathered at Silver Lake Inn, White Horse Pike, N. J., for dinner and the awarding of the prizes.

E. L. Richards, chairman of the Committee, has promised a real treat for the September tournament. The name of the Club at which the tournament will be held has not yet been announced, but arrangements are being completed, and notices will be mailed out to members soon after the holiday.

To Continue Salesmen's Course

PHILADELPHIA, Pa., August 29, 1938—During the month, Doris E. Lewis, executive secretary of the Paper Trade Association of Philadelphia, contacted members in this area in an effort to ascertain the consensus of opinion regarding continuing the Paper Salesmen's Course this year. This activity of the Philadelphia Paper Trade Association, which attracted widespread attention, was inaugurated two years ago by the Educational Committee, and has met with huge success.

The response was unanimous in favor of continuance of the course this year, and as a result the Educational Committee met in the headquarters of the Association this morning at 11 o'clock, with Chairman Wm. E. Hentz presiding, to line up a program, the interesting details of which will be announced early in September.

Complete Field Work in Newsprint

WASHINGTON, D. C., August 31, 1938—All of the field work on the investigation which the Federal Trade Commission is making in the newsprint industry for the Department of Justice has been completed. It is expected now that the report will go to the department from the commission about the middle of September. This is the case, it will be recalled, where the Justice Department called upon the Commission to ascertain whether or not the newsprint industry is living up to the consent decree which it entered into some years ago. There is no indication what the report will be.

Savannah To Hold Paper Festival

SAVANNAH, Ga., August 27, 1938 — Dates for Savannah's first annual Paper Festival have been set for April 17, 18 and 19, a season of the year when the weather is particularly fine.

Announcement to this effect was made last week by D. G. Moon, director of the festival, which is expected to attract thousands of visitors here next spring. The Chamber of Commerce is sponsoring the celebration and has provided Mr. Moon with an office.

Invitations have gone out to the governors of all Southern states and the committee is hopeful of having a number of them accept. There will also be other celebrities, including leaders in the pulp and paper field as well as the consumers of their products.

The theme of the festival will be the development of paper and its many uses. Exhibitions and lectures will graphically portray the process of pine to paper —a development that has brought new wealth and industry to the South.

A brilliant carnival, replete with historical features, and gaily decorated floats will be one feature of the celebration. It is also planned to have a magnificent fireworks display and the crowning of a queen at a paper ball.

Associated with Mr. Moon in directing the festival will be his wife, who has had much previous experience in like enterprises. Mr. Moon is well known in the paper industry as a consulting engineer. He came to Savannah with the Union Bag and Paper Corporation but is now in private practice as a consulting engineer. He and Mrs. Moon were largely responsible for the success of the recent TAPPI convention which drew so many prominent men in the paper industry to Savannah.

London & Krudener Announce Change

London & Krudener, Inc., wood pulp, and paper mill supplies, 52 Vanderbilt avenue, New York, have made the following announcement, which is self explanatory:—

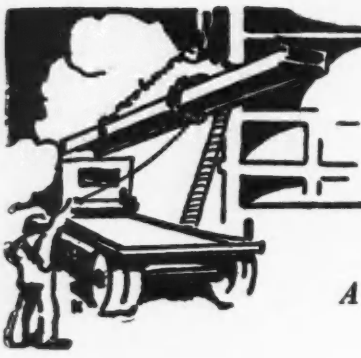
"We wish to advise that Robert E. Krudener has withdrawn from London & Krudener, Inc., to join Pulp Sales Corporation. Needless to state this change has been made with mutual good will on the part of all concerned. Mr. London will carry on this business as a general wood pulp agency and as sole selling agent for "Conus" unbleached kraft pulp, manufactured by the Container Corporation of America at Fernandina, Fla."

Sulphite Market Not Shaken

WASHINGTON, D. C., August 31, 1938—A few sulphite mills in Finland have temporarily suspended operations in order to reduce the output, but in general production is carried on under normal conditions and confidence in the future has not been shaken, according to a report from the American Consulate, Helsinski.

Robt. E. Krudener Has New Connection

Robert E. Krudener, formerly of the firm of London & Krudener, has joined the Pulp Sales Corporation of 230 Park Avenue, representatives in the United States and Mexico of The Finnish Cellulose Association and The Finnish Wood Pulp Union. Mr. Krudener is located at Kalamazoo, Mich., and will take up his duties immediately.



CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Financing and Operation of Pulp and Paper Mills

General Construction News

Kalamazoo, Mich.—The Kalamazoo Paper Company, manufacturer of book and writing papers, has plans under way for modernization and improvements in mill, including extensions in machine department, with installation of a new paper-making machine and complete auxiliary equipment. Entire project will be carried out over a period of several months and is estimated to cost about $400,000, of which approximately $250,000 will be expended for machinery and accessory equipment. A. E. Curtenius is president and general manager.

Fitchburg, Mass.—Crocker, Burbank Papers, Inc., 545 Westminster street, has been incorporated with a capital of $120,000, by officials of Crocker, Burbank & Co., Association, as an interest of that organization, operating a group of eight local mills for the production of book, magazine and other similar paper stocks. Ralph M. Beckwith is president of new company and Douglas Crocker a director.

Los Angeles, Cal.—The Western Waxed Paper Company, 910 East 61st street, manufacturer of waxed and other processed paper stocks, has filed plans for one-story addition to plant, for which erection will be placed under way at once. Construction contract has been awarded to the Austin Company of California, Inc., 77 East Washington boulevard, Los Angeles. No estimate of cost announced.

Houston, Tex.—The Bemis Brother Bag Company, 601 South Fourth street, St. Louis, Mo., manufacturer of paper bags and containers, etc., has begun erection of new addition to branch plant at 2002 Lyons avenue, Houston, to be two-story and basement, about 80 x 92 feet, as recently noted in these columns. Superstructure will be completed in the fall. New unit is reported to cost close to $50,000, with equipment. The T. Hubbard Construction Company, 1507 Delano street, Houston, is general contractor.

Salt Lake City, Utah—The Spafford Paper Stock Company, 1206 Beck street, is considering rebuilding of portion of plant recently damaged by fire. An official estimate of loss has not been announced; it included a paper-shredding machine, baler and other equipment.

Cleveland, Ohio—Gair-Cleveland Cartons, Inc., 10610 Berea road, manufacturer of corrugated board boxes and containers, affiliated with Robert Gair Company, 155 East 44th street, New York, N. Y., has leased additional space in building at first noted address, totaling over 60,000 square feet of floor area, and will remodel and equip for expansion. An existing plant unit at Braintree, Mass., will be removed to the new location. An award for alterations and modernizing promises has been let to the J. H. Libby Company, Midland Building, Cleveland, and work will be placed under way at once. Fred Hashagen is manager at Cleveland plant.

St. Paul, Minn.—The Minnesota Mining and Manufacturing Company, Forest and Fauquier streets, manufacturer of sand papers and kindred products, prepared roofing materials, etc., is pushing erection on a four-story and basement addition to mill, to replace present mill No. 1, and will have the structure completed ready for equipment installation in the fall. Large increased capacity will be carried out. New unit is reported to cost close to $400,000, with equipment. William M. Murphy & Son, New York Building, St. Paul, are general contractors. Toltz, King & Day, Inc., Pioneer Building, is architect and engineer. William L. McNight is president.

Cap de la Madeleine, Quebec—International Foils, Ltd., has been organized in Canada as an interest of the British-American Tobacco Company, Ltd., London, England, to construct a large mill at Cap de la Madeleine, near Three Rivers, where tract of land has been acquired by parent company, as recently noted in these columns. Plant will be used for the production of aluminum foils and tissue papers, as used for cigarette manufacture and wrapping, and will comprise a series of one and multi-story units, with power house, machine shop and other mechanical departments. It is estimated to cost about $1,200,000, of which $400,000 will be used for buildings and $800,000 for machinery and equipment. It is expected to provide facilities for the employment of about 200 persons. An award for building erection has been made to the Fraser-Brace Engineering Company, Ltd., 107 Craig street West, Montreal, Que., and work will be placed under way early in September. Plant is scheduled for completion in the spring of next year. The majority of the output will be shipped to England for use in company cigarette plants there. R. T. B. Schreiber, 3810 St. Antoine street, Montreal, is company representative in Canada, and will be active in supervising erection of new mill.

New Companies

Buffalo, N. Y.—Harrison-McClive, Inc., has incorporated with capital of 200 shares of stock, no par value, to manufacture and deal in envelopes and kindred paper products. New company is repre-

sented by Botsford & Weber, M. & T. Building, Buffalo, attorneys.

Chicago, Ill.—The Irving L. Odman Company, Inc., 61 West Hubbard street, has been incorporated with capital of $10,000, to deal in paper products of various kinds, wrapping stocks, etc. New company will take over and succeed to the Odman Corporation, 350 West Erie street. The incorporators include Irving L. Odman and Ray E. Henderson.

Brooklyn, N. Y.—The Greenhut Paper Corporation has been incorporated with capital of 50 shares of stock, no par value, to deal in paper products of various kinds. Edward Circus, 1008 Gates avenue, Brooklyn, is company attorney and representative.

Newark, N. J.—Aluminum Foil Insulation, Inc., has been incorporated with capital of 2500 shares of stock, no par value, to manufacture and deal in aluminum foils and kindred specialties. New company is represented by John S. Foster, 605 Broad street, Newark, attorney.

A.S.C. Cellulose Division Meeting

Members of the Technical Association of the Pulp and Paper Industry who are planning to attend the fall convention at Green Bay may be interested in stopping off at Milwaukee, Wis., on Tuesday, September 6, to listen to the presentation of papers on cellulose chemistry at the meeting of the American Chemical Society. The papers to be presented are as follows:

TUESDAY MORNING AND AFTERNOON

9:00 A.M.— 1. Cation Exchange in Cellulosic Materials, D. A. McLean and L. A. Wooten.

9:30 A.M.— 2. Cell-Wall Development as It Relates to the X-ray Method for Determining the Strength of Raw Cotton, Earl E. Berkley.

10:00 A.M.— 3. An X-ray Diffraction Study of the Swelling Action of Several Quaternary Ammonium Hydroxides on Cellulose, W. A. Sisson and W. R. Saner.

10:25 A.M.— Intermission.

10:35 A.M.— 4. Preparation of Cellulose Ethers. Function of Alkali. Side Reactions, E. J. Lorand.

11:00 A.M.— 5. The Microscopic Structure of Viscose, Jack Compton.

12:30 P.M.— Divisional Luncheon, Hotel Schroeder, Parlor B.

2:00 P.M.— 6. Effect of Various Preëxtractions on Lignin Determination of Wood, E. E. Harris and R. L. Mitchell.

2:20 P.M.— 7. The Microstructure and the Diffraction Pattern of Basswood Ash. E. A. Parker, W. E. Patzer and G. J. Ritter.

2:40 P.M.— 8. The Exothermal Decomposition of Wood Impregnated with Flammable Organic Liquid, K. A. Kobe and F. L. Goin.

3:00 P.M.— Election of Officers.

3:20 P.M.— 9. The Reaction between Thioglycolic Acid and Spruce Lignin, C. E. Ahlm and F. E. Brauns.

3:45 P.M.—10. Present-day European Chemistry, G. L. Clark.

Government Paper Bids

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 31, 1938—The Government Printing Office has received the following bids for 48,000 pounds (200,000 sheets) of 38 x 50 super-calendered book paper; Bradner Smith & Co., 5.55 cents; Cauthorne Paper Company, Inc., 5.38 cents; Paper Corporation of U. S., 5.53 cents; R. P. Andrews Paper Company, 5.38 cents; Marquette Paper Company, 5.54 cents; Barton, Duer & Koch Paper Company, 5.38 cents; Stanford Paper Company, 5.38 cents; Walker, Goulard, Plehn Company, Inc., 5.51 cents; Thomas Barrett & Son, 5.54 cents; Whitaker Paper Company, 5.38 cents; John F. Post, Inc., 5.38 cents; and Old Dominion Paper Company, 5.38 cents.

For 77,000 pounds (500,000 sheets) of 38 x 48 M. F. book paper: John F. Post, Inc., 5.39 cents; Whitaker Paper Company, 5.39 cents; Perkins-Goodwin Company, 5.39 cents; Walker, Goulard, Plehn Company, 5.36 cents; Old Dominion Paper Company, 5.39 cents; Fitchburg Paper Company, 5.4 cents; Stanford Paper Company, 5.39 cents; Barton, Duer & Koch Paper Company, 5.39 cents; Marquette Paper Company, 5.39 cents; R. P. Andrews Paper Company, 5.39 cents; Paper Corporation of U. S., 5.39 cents; Butler Company, 5.69 cents; and Cauthorne Paper Company, 5.39 cents.

For 13,224 pounds (87,000 sheets) of 50 per cent rag, 29 x 41, white ledger paper: Graham Paper Company, 10.43 cents; Virginia Paper Company, 11 cents; Barton, Duer & Koch Paper Company, 9.9 cents; R. P. Andrews Paper Company, 10.4 cents; Aetna Paper Company, 9.09 cents: Paper Corporation of U. S., 11.3 cents; Stanford Paper Company, 11.5 cents; Whitaker Paper Company, 12.2 cents; Mathers-Lamm Paper Company, 10.98 cents; Walker, Goulard, Plehn Company, 12.31 cents.

For 750 sheets of 21 x 32 pink gummed paper: Whitaker Paper Company, $13.25; R. P. Andrews Paper Company, $15.53; Mathers-Lamm Paper Company, $17.25; Virginia Paper Company, $14.00; and Stanford Paper Company, $22.80.

For 28,050 pounds (300,000 sheets) of 32 x 42 white sulphite writing paper: R. P. Andrews Paper Company, 6.16 cents; Old Dominion Paper Company, 6.433 cents; Graham Paper Company, 6.5 cents; Stanford Paper Company, 6.17 cents; Barton, Duer & Koch Paper Company, 6.26 cents; Marquette Paper Company, 6.24 cents; Aetna Paper Company, 5.91 cents; Mathers-Lamm Paper Company, 6.01 cents; Paper Corporation of U. S., 7.04 cents; Cauthorne Paper Company, 6.1099 cents; Mudge Paper Company, 5.97 cents; and Walker, Goulard, Plehn Company, 6.65 cents and 6.09 cents.

For 145,300 pounds (1,150,000 sheets) of various sizes white M. F. book paper: R. P. Andrews Paper Company, 5.14 cents; J. F. Post, Inc., 5.39 cents; Whitaker Paper Company, 5.39 cents; Perkins-Goodwin Company, 5.39 cents; Fitchburg Paper Company, 5.39 cents; Stanford Paper Company, 5.39 cents; Barton, Duer & Koch Paper Company, 5.39 cents; Marquette Paper Company, 5.31 cents; Paper Corporation of U. S., 5.39 cents; Butler Company, 5.59 cents; Cauthorne Paper Company, 5.39 cents; Thomas Barrett & Son, 5.39 cents; Mathers-Lamm Paper Company, 5.7 cents; and Walker, Goulard, Plehn Company, 5.39 cents.

PAPER TRADE
ESTABLISHED 1872
JOURNAL

Reg. U. S. Pat. Off.

George S. Macdonald, Pres. *Joseph P. Horgan, Secy.*
Executive and Editorial Offices, 15 West 47th St., New York, N. Y.

Henry J. Berger
EDITOR

Ronald G. Macdonald
Editor Technical Section

Lynne M. Lamm
Washington Correspondent

Per Copy, 10 cents United States, Per Annum, $4.00
Canada and Foreign Countries in Postal Union, $6.00

Member Audit Bureau of Circulations

Vol. CVII New York, September 1, 1938 No. 9

COMING EVENTS IN THE PAPER INDUSTRY

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY. Fall meeting, Northland Hotel, Green Bay, Wis., September 8-10.

NATIONAL PAPER TRADE ASSOCIATION. Fall convention, Stevens Hotel, Chicago, Ill., September 19-21.

NEW LAW CREATES PROBLEMS

The Fair Labor Standards Act of 1938 which becomes effective at midnight October 30, will affect all industry. The appointment of Elmer F. Andrews as Administrator for New York State is generally regarded as a good choice. Mr. Andrews is familiar with the paper industry and has served the State as Commissioner of Labor. In the opinion of business economists Allen W. Rucker and N. W. Pickering, in a preliminary study of this law published by Farrel-Birmingham Company, Inc., Ansonia, Conn., under the title of "Coming Problems Created by The Fair Labor Standards Act of 1938" the authors believe a new wave of wage demands and an acceleration of technological advance appears probable.

In commenting on the broad scope of the Act, the authors said in part: "The Fair Labor Standards Act of 1938 has as its objective something more fundamental than the placing of a ceiling on working hours and a floor under wage rates. The Act also seeks to expand the total earnings of labor and (Section 2-a) more or less equalize the national level of minimum wage rates as a means of influencing price competition in certain industries.

"The steps taken to gain those objectives affect all industry. The chief of these are the following: (1) The reduction of weekly hours of work unless industry submits to union organization or time and one-half for overtime work. (2) The empowerment of an Administrator to investigate the wages, hours and other conditions of employment in any industry in interstate commerce. (3) The organization in all industries of an industry committee with instructions to fix as speedily as practicable the highest possible minimum wage rate above 25 cents an hour and up to 40 cents an hour, i. e., no industry or firm may pay less than 25 cents an hour in the first year or 30 cents an hour in the second year, but may *immediately* be required to pay a minimum wage as near 40 cents an hour as the industry committee and Administrator think feasible.

The broad scope of the Act is revealed in the wording of the Act (Section 2.b) which reads: "It is hereby declared to be the policy of this Act, through the exercise by Congress of its power to regulate commerce among the several States, to correct, and as rapidly as practicable to eliminate, the conditions (detrimental to labor) referred to without substantially curtailing employment or earning power".

"The fulfillment of this policy necessitates, in so far as manufacturing industry is concerned, an increase in the total monetary payrolls disbursed yearly. That necessity presents an impossible requirement. The attempt to fulfill the purpose of the Act, however, will be made in conformity with the statute and will probably react on all industry in a subtle but decisive fashion, somewhat as follows. As the new minimum rates take effect, the funds with which to pay them must be drawn from the available national wage fund determined by underlying conditions. The administration of the law will not increase the fund but simply cause a shift in its present distribution among industry groups.

"This shifting or 'economic drift' in the wage fund is usually accompanied by a similar shifting of the national manufacturing income fund." Expressed in percentages, the economic drift of payroll funds away from heavy industry, such as forest products, toward light industry, such as paper and products, shows a decline from 7.98 per cent in 1929 to 5.81 per cent in 1935 in forest products, and a gain from 2.48 per cent in 1929 to 3.10 per cent in 1935 for paper and products. This is the percentage of industry group to the total manufacturing payroll fund.

Similarly, the economic drift of income funds or value added by manufacture away from heavy industry and toward light industry is given in the study as follows: forest products income declined from 6.20 per cent in 1929 to 5.54 per cent in 1935, while paper and products rose from 2.51 per cent in 1929 to 3.33 per cent in 1935. The economic drift of employment opportunity away from heavy industry, such as forest products, toward light industry, such as paper and products, is given in the study as follows: forest products, declined from 9.84 per cent in 1929 to 7.85 per cent in 1935, while the drift of employment opportunity toward the paper and paper products industry rose from 2.64 per cent in 1929 to 3.20 per cent in 1935.

According to the Rucker and Pickering study,

both the annual manufacturing wage fund and the annual manufacturing income fund are limited by external forces and neither can be expanded beyond the limits imposed by those forces. For that reason the attempt of the Federal Government to raise the income of labor in some industries will be followed by corresponding reductions in the wage income of labor in other industries. The pressure, in the view of the authors, is likely to fall heaviest upon the highly skilled crafts and upon the heavy industries.

Paper Making in 1835

An interesting description of paper making a century ago has been sent to the PAPER TRADE JOURNAL by J. L. Fearing, vice-president of the International Paper Company, 220 East 42d street, New York, N. Y. The method is described in a book for children entitled, "Conversations on Common Things, or Guide to Knowledge with Questions", published in 1835 by Munroe & Francis, 128 Washington street, Boston, Mass. Information is imparted through conversation between mother and daughter. In the paragraph describing the pulping process the parent said in part: "The first process after the rags are taken to the mill, is sorting them according to their different degrees of fineness, into three parts; this is done by women and children. The rags are next conveyed to a mill and washed perfectly clean, in hot water; then ground into a kind of pulp by means of an engine which consists of a round solid piece of wood, furnished with long sharp steel knives; this is fixed in a large trough, half filled with water, in the bottom of which are bars of sharp steel, similar to those on the roller: this engine is put in motion, and turning with great velocity, reduces the rags to a pulp in a short time. In this state the pulp is called half stuff, and is next conveyed to a vat, into which the workman dips a sieve, consisting of a square frame about an inch deep, made of small brass wires, exactly the size of the intended sheet of paper; the frame causes the wires to retain enough of the pulp for a sheet of paper; the workman shakes the frame to clear the water from the pulp, and then passes it to a coucher, who turns out what remains in the mould upon a square of felt which lies upon a flat board or table; the felt rapidly absorbs the moisture from the pulpy substance; another felt is laid upon this, and so on. The coucher returns the mould to the maker, who by this time has another sheet ready prepared upon a similar frame. He thus continues to make sheet by sheet until the pile contains six quires or 144 sheets of paper; in this state it is called post: the whole is placed under a screw press, where it remains until the water is thoroughly squeezed out, after which the paper is carried to an air room, and hung upon lines to dry."

Homer Eveland Made Superintendent

Homer Eveland has been appointed superintendent of the Fairfield Paper Company, Baltimore, Ohio, succeeding the late Charles W. Unkle.

Mr. Eveland has been associated with the company for a good number of years and will be quite familiar with his new duties.

Production Ratio Report

The statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES

Months	1938(c)	1937(c)	1936	1935	1934
January	63.9%	90.3%	76.1%	65.8%	.....
February	68.7%	90.1%	77.9%	70.0%	.....
March	69.6%	90.3%	76.0%	70.5%	.....
April	68.3%	92.1%	82.3%	70.0%	.....
May	69.0%	90.6%	81.6%	69.4%	.....
June	65.8%	87.3%	80.7%	72.3%	.....
July	71.9%	81.8%	77.3%	64.9%	.....
August	.....	82.9%	81.5%	70.9%	.....
September	.....	78.6%	80.5%	71.9%	58.2%
October	.....	73.5%	87.6%	75.6%	64.7%
November	.....	61.9%	88.0%	75.3%	61.7%
December	.....	54.5%	85.9%	71.2%	59.6%
Year Average	.....	80.6%	81.3%	70.5%	.....
First 33 weeks	68.7%	88.3%	79.0%	69.0%	.....

COMPARATIVE WEEKLY SUMMARIES

CURRENT WEEKS, 1938		CORRESPONDING WEEKS, 1937	
*July 16	75.6%	July 17	87.6%
*July 23	76.2%	July 24	85.9%
*July 30	77.3%	July 31	83.9%
*August 6	73.0%	August 7	82.6%
*August 13	77.0%	August 14	82.1%
*August 20	76.8%	August 21	83.7%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting, Current Weeks					
Ratio Limits	July 16, 1938	July 23, 1938	July 30, 1938	Aug. 6, 1938	Aug. 13, 1938	Aug. 20, 1938
0% to 50%	84	78	88	88	74	59
51% to 100%	224	231	220	211	210	144
Total Mills Reporting	308	309	308	299	284	203

* Subject to revision until all reports are received.
(c) Basic capacity data have been adjusted to correspond with ratings reported by individual companies.

PAPERBOARD OPERATING RATIOS

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours", were as follows:

Mos.	1938 (e)	1937 (e)	1936	1935	Mos.	1938 (e)	1937 (e)	1936	1935
Jan.	55%	80%	61%	61%	July	....	67%	69%	59%
Feb.	61%	86%	67%	67%	Aug.	....	74%	75%	65%
Mar.	60%	87%	68%	67%	Sept.	....	70%	76%	69%
Apr.	57%	89%	70%	61%	Oct.	....	66%	82%	76%
May	58%	86%	68%	61%	Nov.	....	56%	79%	70%
June	56%	75%	68%	65%	Dec.	....	46%	74%	60%

Week end. July 16, 1938—60%
Week end. July 23, 1938—65%
Week end. July 30, 1938—64%
Week end. Aug. 6, 1938—64%
Week end. Aug. 13, 1938—65%
Week end. Aug. 20, 1938—67%

(e) Basic figures revised to include new members of the National Paperboard Assn.

Gets Patent on Continuous Beater

A United States Patent, No. 2,125,820, on an apparatus for continuously beating paper pulp, was granted to Ralph J. Serpas, Minneapolis, Minn., under date of August 2, 1938.

Some of the features of this new device are as follows:—The beater is of a unique design. It consists of a long shaft with the rolls spaced close together and separated with a thin midfeather. The rolls are of the same design as the ordinary beater, but only one-third the size, with a backfall that is inclined towards the next roll. As the pulp flows over the backfall it goes directly under the next backfall, under the bedplate, then between the roll and the bedplate and over the succeeding backfall to make a continuous beating process. Each bedplate can be adjusted to any distance from the roll that is necessary or they can be raised or lowered as a group. It is expected that a beater of this type will be able to beat fifteen tons of sulphate or sulphite pulp per hour with a three hundred horsepower motor.

WHERE TO USE THIS CRANE CHECK VALVE
...IN PULP AND PAPER MILLS

Lift check valves with composition discs are especially suited for service where discs must be renewed easily and quickly. They may be used on steam, air, gas and other vapor lines—provided that flow is not subject to severe pulsations. But that's about as far as general working principles can be applied in check valve selection—be it composition or metal disc lift check, cushioned disc, swing type—or any of their many variations.

Check valves can't be picked by a formula. Crane makes more than 90 types—each designed for a specific service. What type is best suited to your needs and where to use composition or metal discs in lift or swing type valves can be decided only by thorough knowledge of check valves and experience in their use. Your Crane Representative is specially trained in the solution of back-flow control problems. He can offer the valve that is exactly matched to your requirements.

It's What's Inside That Counts!

It goes without saying that satisfactory performance of check valves depends on their quality as well as on selection of the proper type. Crane-Quality, backed by more than 80 years of manufacturing and valve engineering experience, is your assurance of superior goodness in Crane Check Valves all the way through—of proper design to perform efficiently, built right to give lasting service.

"Checking Up on Check Valves"

This new Crane booklet gives a lot of valuable information on the Crane line of check valves for every application. It contains the handy reference guide illustrated above. Write for your free copy today.

CRANE

VALVES • FITTINGS • PIPE
PLUMBING • HEATING • PUMPS

CRANE CO., GENERAL OFFICES: 836 SOUTH MICHIGAN AVENUE, CHICAGO, ILLINOIS

NATION-WIDE SERVICE THROUGH BRANCHES AND WHOLESALERS IN ALL IMPORTANT CITIES

Section of the Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Review Of The Paper Industry Literature

Abstracts Compiled By the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman.

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Cellulose and Lignin

The Determination of Lignin. III. Acid Pretreatment and the Effect of the Presence of Nitrogenous substances. Arthur G. Norman. Biochem. J. 31: 1567-1574 (1937).—Various aspects of the determination of lignin are discussed. Aldehydes or phenolic compounds may condense with lignin to give high results. Proof of the absence of reaction between lignin and pentoses under particular conditions must be obtained by determinations in the presence of pentoses. The observation is confirmed that intermittent acid hydrolysis gives lower yields of lignin than continuous hydrolysis. The enhanced yields of apparent lignin caused by the presence of protein must be caused by the condensation of large protein fragments partially deaminated. The disturbance caused by amino acids and nitrogenous bases is of a much lower order.—A.P.-C.

Studies on Lignin and Related Compounds. XXXIV. Acetonvanillone and Acetosyringone as Degradation Products of Lignin Sulphonic Acids. Frank Léger and Harold Hibbert. J. Am. Chem. Soc. 60: 565-567 (March, 1938).—Spruce lignin sulphonic acid on treatment with hot aqueous alkali gives, in addition to vanillin (6-7 per cent), acetovanillone in a yield of approximately 0.2-0.3 per cent of the weight of lignin present. Birch lignin sulphonic acid under the same conditions gives a mixture of vanillin, syringic aldehyde and acetosyringone in yields of approximately 2.9, 2.9 and 0.8 per cent, respectively, of the weight of lignin present. The experimental data indicate the presence of the guaiacyl and the acetoguaiacyl radicals in the spruce lignin building unit. It is probable that the acetoguaiacyl and acetosyringyl radicals do not exist as such but are present as aldol or enol types. The disagreement of these results with Freudenberg's theory of lignin as a polymerization product derived by condensation reactions of a dioxyphenyl hydroxylated propane building unit is pointed out.—A.P.-C.

Direct Appraisal of Available Cellulose in Wood for Pulp Yields. E. E. Randolph. J. Elisha Mitchell Sci. Soc. 53: 222-224 (1937).—Small stainless steel digesters are used in which sawdust obtained from the sample with a coarse circular saw is digested with sulphite liquor. The digesters are placed in an oil bath maintained at constant temperature. The use of sawdust in place of the usual chips reduces the time of digestion necessary to 3 to 4 hrs. The Cross and Bevan method required 2 to 3 days.—A.P.-C.

Action of Chloroacetic Acid on Willstaetter Lignin and on Wood Pulp. N. I. Nikitin and T. I. Rudneva. J. Applied Chem. (U. S. S. R.) 10: 1915-1920 (1937); C. A. 32:1929.—Chloroacetic acid reacts with Willstaetter lignin at 100-120° with almost complete solution of lignin, and production of an ester containing 9 per cent chlorine and 13 per cent of methoxyl. The direct action of the acid on pine pulp under the same conditions results in solution of not less than two-thirds of the esterified lignin together with a part of the carbohydrates. After extracting the product with ether, removal of adsorbed chloroacetic acid with alcoholic ammonia and removal of the carbohydrate admixtures by means of acid hydrolysis (5 per cent sulphuric acid used), the composition of the regenerated lignin is similar to that of Willstaetter lignin. The precipitated ester is easily saponified with weak alkali and with sulphuric acid. The treatment of the ester with alcoholic ammonia yields chloroacetamide. The comparison of the elementary composition and the chlorine and methoxyl contents, with those theoretically calculated by the Freudenberg lignin formula, discloses that 75 per cent of the hydroxyl groups were esterified.—C.J.W.

Alkaline Process

The Delignification of Wood By Strong Alkaline Solutions. G. R. Lusby and O. Maass. Can. J. Research 15B: 536-544 (1937).—The delignification of wood by means of sodium, potassium and lithium hydroxides was determined with alkaline concentrations from 1.4 to 14.3 molar, and at temperatures from 120° to 180° C. A small-scale experimental technic was used by means of which the time, temperature and concentration variables could be closely controlled. It was found that delignification increased with concentration. A 2.9

molar solution reacted about twice as fast as a 1.4 molar solution of sodium hydroxide at 160° C. The difference in rate of reaction is less for solutions of concentrations of 2.9 and 4.5 molar. Potassium hydroxide of 1.4 molar concentration reacts only slightly more readily than sodium hydroxide of the same concentration, but the difference in reaction rate becomes more marked with increase in concentration. Lithium hydroxide reacts much more slowly than either of the two other alkalies. There is a marked increase in reaction rate with increase in temperature. A 10° C. rise in temperature somewhat more than doubles the rate of delignification. The rate of reaction is considerably diminished by the presence of sodium chloride or of reaction products in the cooking liquor.—A.P.-C.

Pulp Process "Snia-Viscosa" (Societa Nazionale Industria Applicazioni Viscosa). Fr. pat. 815,350 (July 9, 1937).—Cellulose is made by treating stems of annual plants in two steps, the first at a high temperature and pressure with weak solutions of sodium hydroxide containing hemicellulose in amount equal to 50 per cent at least of the sodium hydroxide present, and the second at atmospheric pressure and at low temperature with more concentrated solutions of sodium hydroxide. The viscosity of the cellulose obtained is lowered by a hot treatment with acid solutions the pH of which lies between 0.6 and 1.0.—A.P.-C.

Pulping Process. Heinrich A. Knopf. Fr. pat. 815,138 (July 6, 1937).—Cellulose is prepared from vegetable raw material by use only of a saturated calcium hydroxide solution containing no solid phase or only very small quantities thereof that are insufficient to cause deposition on the material being treated, the solution being circulated through the fibrous material and being maintained saturated by continuous addition of lime at a rate corresponding to its consumption.—A.P.-C.

Utilization of Black Liquor for thee Production of Steam. *Versepuy.* Mem. Soc. Ing. Civils France 90: 79-98 (1937).—The Tomlinson process which has been used with success in Canada and Sweden and which is being introduced into the United States and Finland, is reviewed.—A.P.-C.

Black Liquor Recovery. Canada Paper Co. and G. H. Tomlinson. Brit. pats. 475,416 and 475,548 (May 16, 1936).—*No. 475,416*—The liquor is sprayed across the upper section of a furnace to deposit ash on the vertical wall opposite; the sprays are oscillated slowly to allow the ash material to drop off in sections on to the hearth, where it is cooled. *No. 475,548*—The spray is flattened by a plate, the nozzle as a whole is oscillated, and the plate is oscillated around the axis of the nozzle.—A.P.-C.

Newsprint From Pine Mechanical and Chemical Pulps

Grinding Experiments with a Coarse Grit Synthetic Stone

By A. C. Fuller[1] and Charles Carpenter[2]

Abstract

The wood of young Longleaf (P. palustris) and Loblolly (P. taeda) pines was ground experimentally on a 30 grit Aloxite stone. Operating conditions were varied such that pulps of widely different characteristics were secured.

Experimental newsprint runs were made using a composite stock of mechanical pulps produced on the coarse stone. Pine sulphate and sulphite pulps were used as chemical stock. Printing characteristics were judged by the printing of the papers on a standard news press.

Introduction

Experimental grinding of southern pines on medium and finer grit stones was described by the Forest Product Laboratory *(1, 2, 3, 4)*. Grinding up to 1937 at the Savannah Laboratory was summarized by Walker *(5)*. On the basis of the results with synthetic 80 and 40 grit stones Walker pointed out the possibility of improvement in pine mechanical pulp characteristics through the use of coarser grit stones. Shortly thereafter this type of grinding wheel, a 30 grit Aloxite stone of the Carborundum Company, was installed at the Savannah Laboratory. The grinding of pine on this stone and the manufacture of newsprint therefrom are described in this paper.

Equipment

Mechanical Pulping

Grinder and accessory equipment were described by Walker *(5)*.

Chemical Pulping

A 60 cu. ft. alloy steel digester was used for both sulphite and sulphate pulping. Forced circulation and indirect heating were employed in all cooks. Pulps were washed in the blow-pit, screened through 10-cut flat plates and lapped on an Oliver wet machine. Sulphite pulps were washed over the inclined wire to remove ray cells *(6)*.

Paper Making

Newsprint runs were made on a right hand Pusey & Jones machine equipped as follows:

Variable-speed line-shaft drive
Rectangular flow box—single baffle
Fourdrinier—Wire 31 inches x 33 feet (60 mesh)
Top and bottom couch rolls
First slice at edge of apron, second slice four inches down the wire
Dandy roll
Two suction boxes
First press rolls: granite (top), rubber (bottom)
Second press rolls: brass (top), rubber (bottom)
Dryer section—nine 24 inch cast iron dryers
Calender stack—5 rolls (2 steam)

[1] Member TAPPI; National Container Corp., Jacksonville, Fla.

[2] Member TAPPI; Assistant Director, Herty Foundation Laboratory, Savannah, Ga.

[*] Presented at the Fall Meeting of the Technical Association of the Pulp and Paper Industry, DeSoto Hotel, Savannah, Ga., Oct. 18-21, 1937.

Stock to the machine was handled by a baby jordan and a basket-type centrifiner.

Operation

Pulping

The grinding procedure was similar to that described by Walker (*5*). The sulphite pulps were cooked and handled by methods given by Carpenter (*6, 7*). The alkali digestion was made with liquor prepared from technical sodium hydroxide and sodium sulphide. The sulphate pulp was brought to a satisfactory color by a two stage operation in the chlorinater and bleacher.

Paper Making

500 lb. (dry weight) of lapped stock was furnished to the beaters. Color was added to the mechanical pulp.

When used, clay, size and alum were added in that order. Just before the run the furnish was pumped from the beaters to the stock chest.

The machine runs were made at approximately 70 feet per minute with a ¼ second ¼ inch shake. The stock was pumped from the chest into the regulating box from where it passed into the jordan. The jordan discharged into the mixing well where the stock was diluted with the tray water. The diluted stock then passed to the centrifiner and the flow box of the machine. Suction box water went to the sewer. Fresh water was used in all showers.

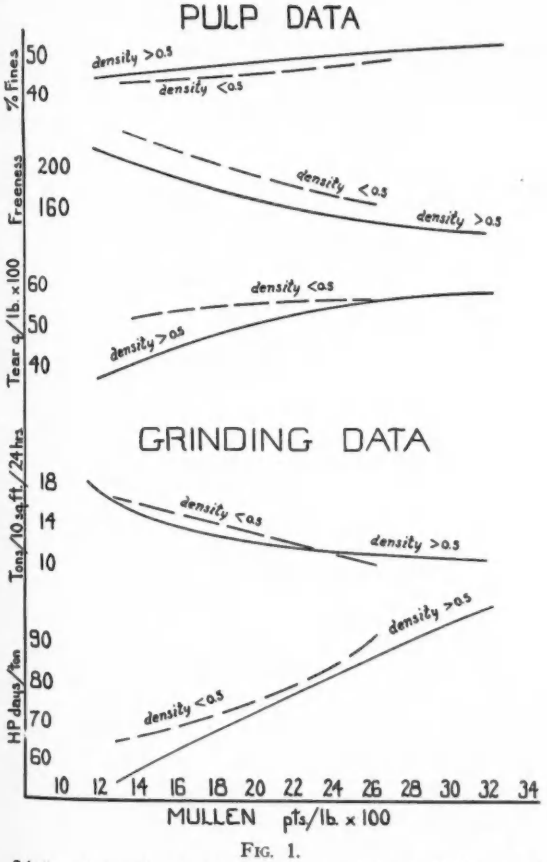


FIG. 1.

Grinding data and pulp characteristics as functions of the ground wood Mullen strength—Density <0.5, fast growth Loblolly; Density >0.5, slow growth Longleaf; Freeness, 3 g. Schopper Riegler; Per cent fines, per cent pulp passing 100 mesh of McNett classifier.

Experimental and Results

Grinding

Wood was separated into two groups according to density: greater than 0.5 and less than 0.5. Separation on this basis was found to be more significant than a division according to species. The denser wood was characterized by relatively narrow growth rings and high summerwood content.

Fourteen grinder runs were made of each type of wood. Unit pressures varied from 25 to 45 lb. per sq. in. When grinding on surfaces of equal roughness, an increase in unit pressure resulted in increased production and decreased power consumption. Concomitantly pulp characteristics altered in that mullen and tearing strength decreased while coarseness and freeness of stock increased. These trends are shown graphically by the plots in Fig. 1. Grinding and pulp data are plotted as a function of mullen rather than of pressure in order to eliminate in part the effect of stone sharpness.

Differences between the two types of wood were observed both in operation and in general pulp characteristics. Under the same grinding conditions a weaker pulp was produced at a greater rate and with less power from the denser wood. Similar mullen strengths, production rates and power demands from the two types of pulp were secured through grinding the denser wood at slightly lower unit pressures. At 70 horsepower days per ton this differential amounted to about 5 lb. per sq. in. Differences in the fiber of the stocks of the two woods were also marked. At the same mullen strength the denser wood pulp was consistently slower and finer than the lighter wood pulp.

The mechanical pulp used in the machine runs was composited from seven grinder runs of both dense and light wood. The runs composited covered a range of grinding conditions such that the unit power consumption varied from 74 to 112 h.p.-days per ton. Runs 796-800 were made with mixtures of slow (dense) and fast growth (light) wood, the mean density of which, however, was greater than 0.5.

TABLE I.—GROUNDWOOD PULPS—COMPOSITE USED IN NEWSPRINT RUNS

Ground-wood No.	Per cent Used in Composite	Species		H.p.—days per ton
		Longleaf	Loblolly	
793	12	X		81
795	21	X		82
796	4	X	X	74
797	9	X	X	82
798	19	X	X	88
799	22	X	X	92
800	13	X	X	112
Composite	100%	66%	34%	89 (weighted mean)

The composited groundwood stock tested as follows:

Mullen—26 pts./lb.×100
Tear—55 g/lb.×100
Tensile—6200 g/lb.×100
Freeness—160 (3g. S-R)
Fines—48 per cent.

Chemical Pulps

The chemical pulps used in these runs were a semi-bleached longleaf pine sulphate pulp and three unbleached longleaf pine sulphite pulps. The sulphate pulp might be termed an average bleachable sulphate pulp, bleached to a brightness of approximately 68 in two stages—4 per cent chlorine consumed in the first (chlorination) and 2 per cent in the second (hypochlorite) stage. The beater tests of this pulp indicated that the pulp was of average strength for its type, developing approximately 120 per cent mullen

and 200 per cent tear at 400 degrees Schopper-Riegler.

The three sulphite pulps were cooked to varying hardnesses. Data regarding these cooks are given in

TABLE II.—CHEMICAL PULPS USED IN NEWSPRINT RUNS

No.	Cook	Wood	Yield Unbleached Pulp [1] Per cent	Permanganate No.[2]	Chlorine Consumed
442	Sulphite	Longleaf	41	5.8	Not bleached
457	Sulphite	Longleaf	44	12.3	Not bleached
455	Sulphite	Longleaf	47	19.4	Not bleached
	Sulphate	Longleaf	44	15.0	4 + 2 = 6%

[1] O.D. Basis: screened and washed pulps.
[2] Pulp Bleaching Company number.

Table II. No. 442 was a soft pulp, No. 457 a hard pulp and No. 455 a raw pulp. Pulp 455 while shivey screened satisfactorily and did not entail any refining other than that usually found necessary in handling pine newsprint furnish.

Machine Runs

Machine runs were made with the composite groundwood and the chemical pulps already described. Runs were made with and without addition of small amounts of filler, size and alum. The stuff was jordaned after the regulator box to improve the formation. 50 to 65 kw. hr. per ton sufficed in these cases. The complete data of the runs covering the furnish, stock characteristics and the characteristics of the finished paper are given in Table III.

Runs 318, 321 and 322 were made to show the use of sulphite pulps of different hardness. Run 320 was comparable to 321 with the exception that no filler, etc. was added. No. 319 was made with sulphate chemical pulp.

The effect of chemicals was evident in the headbox freeness. The addition of size and alum affected a considerable "freeing up" of the stock. This was illustrated best in Runs 320 and 321.

More elusive characteristics of the finished sheet, such as feel, etc. were better in all these runs than described earlier (*8*). In particular, the "flimsy" feeling was gone. This was due to the improved quality of the groundwood and perhaps due to the use of denser wood.

Printing

Sixty-five pound rolls of all five runs were printed on the *Savannah Evening Press* immediately following the printing of the regular edition on Canadian newsprint. Forms were shifted to permit the printing of particularly large cuts and advertising whereby strike-through and show-through could best be evaluated. The same ink and the same quantity were used on the ink rolls. Two pine newsprint rolls were printed at a time, the sheets from one roll folded within those of the other and carried up the ladder to the stacker, where they were taken off by hand (usual procedure) and marked to avoid confusion later. In this way all five papers (plus one duplicate) were run, each set immediately following the other on the same type.

The printed sheets were examined for show-through, strike-through and contrast. Cuts were examined carefully, both with eye and hand lenses and compared with the standard newsprint runs of the same cut. Little difference in printing characteristics was noticed between the runs. Apparently opacity and surface of the unfilled sheets were such that the addition of the small amount of clay (1.2 ash) and the size was without appreciable effect.

Conclusion

Young longleaf and loblolly pines ground on a coarse (30 grit) Aloxite stone yielded pulps of better paper-making qualities than had heretofore been made at the Savannah Laboratory from similar woods.

Smooth and firm news sheets that printed well were made from these groundwoods using either pine sulphate or sulphite pulps and with or without the addition of filler and size.

Acknowledgments

The authors wish to express their appreciation to Chas. H. Herty for his advice and encouragement and to the members of the staff who were directly responsible for the execution of the work.

They are indebted to the Carborundum Company for the cooperation in supplying the pulpstone.

Literature Cited

(1) Schafer, E. R., and Santaholma, atti. Effect of Different Sized Fibers on the Physical Properties of Groundwood Pulp. *Paper Trade J.*, 97, No. 19:40-45 (Nov. 9, 1933).

(2) Schafer, E. R. and Pew, J. C. Effect of Temperature and Consistency in Mechanical Pulping. *Paper Trade J.*, 101, No. 13:71-76 (Sept. 26, 1935).

(3) Schafer, E. R., Pew, J. C., and Knechtzes, R. G. Effect of High Pit Temperature and of Preheating of the Wood on the Grinding of Loblolly Pine. *Paper Trade J.*, 103, No. 2:41-44 (July 9, 1936).

(4) Schafer, E. R., Pew, J. C., and Curran, C. E. Grinding of Loblolly Pine. Relation of Wood Properties and Grinding Conditions to Pulp and Paper Quality. *Paper Trade J.* 105, No. 21:41-48 (Nov. 18, 1937).

(5) Walker, W. J. Grinding Southern Pine Under Semi-Commercial Conditions. *Paper Trade J.* 105, No. 12:44-54 (Sept. 16, 1937).

(6) Carpenter, Charles. A Study of the Ether Soluble Material In Sulphite Pulp from Southern Pine. *Paper Trade J.* 105, No. 16:42-47 (October 14, 1937).

(7) Carpenter, Charles, and McCall, Frank. Acid Pulping of Southern Pine. *Ind. Eng. Chem.* 30, No. 1:15-20 (January 1938).

(8) Anderson, L. C. Report on the Manufacture of Newsprint from Southern Pine Under Commercial Operating Conditions. *Paper Trade J.*, 98, No. 9:31-32 (March 1, 1934).

TABLE III.—FURNISH AND PAPER DATA—NEWSPRINT RUNS

	Furnish						Stock			Paper									
		Chemical Pulp		Filler etc.[1]													Smoothness		
Run No.	Composite G.W., Percent	Per cent	No.	Clay, Per cent	Size, Per cent	Alum, Per cent	Jordaning, Kw.-hr./ton	Freeness, deg. SR[2]	Wet strength[3]	Burst, Points/lb.×100	Tear, g./lb.×100	Tensile, g./lb.×100	Stiffness[4]	Porosity[5]	Basis Weight[6]	Caliper, inches	Opacity[7]	Felt Side	Wire Side[8]
318	80	20	455	3.4	0.6	5.0	50	245	47	25	60	5300	80	70	32.2	0.0035	0.92	27	20
320	80	20	442	..	..	..	60	160	41	28	52	6100	75	130	32.3	0.0033	0.91	36	27
321	80	20	442	3.4	0.6	5.0	60	200	40	24	47	5200	75	180	32.0	0.0032	0.92	24	17
322	80	20	457	3.4	0.6	5.0	65	195	42	24	48	5200	75	160	33.1	0.0032	0.93	30	22
	Sample A—			calendered lightly						30	73	6500	80	80	32.7	0.0037	...	..	..
319	80	20	Sulphate	..	..	..	55	180	53										
	Sample B—			calendered heavily						25	64	6000	75	110	32.6	0.0031	0.92	49	41

[1] Basis: o.d. pulp. [2] 3g. Schopper-Riegler Freeness. [3] Elmendorf Tear at 28 per cent dry, 16-ply (without incision). [4] Empirical test: 100 = absolute rigidity. [5] Seconds/100 cc.—Gurley Densometer. [6] 24x36—500. [7] Bausch & Lomb Contrast Ratio. [8] Seconds—corrected Williams; courtesy Pulp and Paper Dept., N. Y. State College of Forestry.

Boiler Feedwater Treatment for High Pressure Boilers*

By Sheppard T. Powell[1]

Abstract

In this paper an attempt has been made merely to review recent developments in the art of water conditioning, and to point out various combinations of treatments which may be employed advantageously when they are adapted to the water supply and specific requirements of the plant. These developments are indicative of the advances that have been made in this field, and which have been stimulated by the critical operating conditions imposed by modern steam generating practice.

A number of papers relating to water purification have been presented before this group and at sectional TAPPI meetings. Most of these addresses have been confined to water treatment for process uses and allied mill requirements. The purpose of the present discussion is to review developments in the art of water conditioning with respect to its use in boilers designed to be operated at relatively high pressures. For a number of years there has been an increasing trend toward the use of high pressure boilers, especially for the production of steam in central stations of public utilities, for generating electric power. Experience gained through such practice has demonstrated to industrialists the economic value of such equipment, and many high pressure boiler installations have been made recently where process steam and power are essential requirements.

Since the manufacture of pulp and paper of various qualities requires both steam and power in relatively large quantities, paper mill management has been alert to these developments and has recognized the economic advantages accruing from efficient high-pressure boilers. This is clearly demonstrated in Fig. 1, showing the boilers installed in paper mills during the past five years.

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Waldorf-Astoria Hotel, New York, N. Y., Feb. 21-24, 1938.

[1] Member TAPPI, Consulting Engineer, Baltimore, Md.

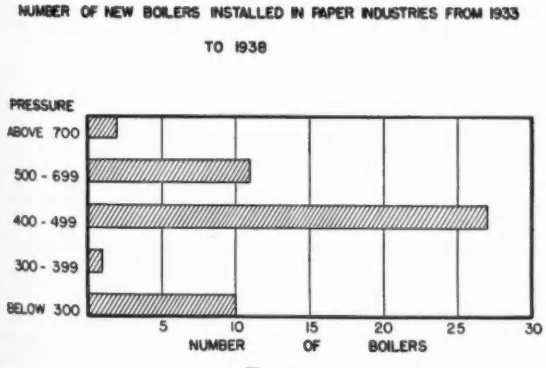


FIG. 1

Number of New Boilers Installed in Paper Industries from 1933 to 1938.

Under boiler operating conditions where the percentage of make-up water is low, the problem of preparing it satisfactorily for such use presents no difficulty, since all make-up water can be economically produced by evaporators and only minor supplementary chemical treatment is necessary. However, when the percentage of condensate returned to boilers is small in amount and where the boilers are designed to operate at high pressures and at high ratings, the treatment of the feedwater is often a difficult problem. Its solution requires extreme care in the design and subsequent operation of the treating system in order to insure satisfactory boiler performance. The choice of treatment methods will be influenced by a number of factors which should be determined and analyzed before the purification equipment is selected. It is difficult to generalize about all of the conditions which may influence the selection of the processing plant, since their relative importance varies widely in different mills. Consideration should be given, however, to the chemical composition of the raw water, the magnitude and fluctuation of the various constituents, the type and design of the boilers, and their predicted operating conditions. It is necessary, also, to consider the anticipated type and distribution of the process steam demands and heat balance of the station. Embarrassing defects in steam station performance, which are related to feedwater treatment, can be avoided if adequate study is given initially to these and other factors prior to the design and construction of the water conditioning system.

Because of the time limitation imposed for the delivery of this paper, it is impossible to describe all of the various combination treatments which can be or have been employed. However, as illustrative of recent trends in this respect, a few outstanding and successfully designed systems may be of interest.

Much development work in this field is now in progress in this country and abroad, and it is not too optimistic to predict that feedwater may be satisfactorily treated for use in boilers at any pressure and with make-up requirements up to one hundred per cent. Studies are now in progress for the design of at least one boiler plant which will be operated at 1400 pounds pressure and where all the feedwater make-up will be chemically treated water.

Water for such use must, of course, be free from scale-forming solids, and so treated as to completely inhibit its corrosive, embrittling or foaming characteristics. A matter of great importance is the removal of silica and organic matter from the water which is used for this purpose, in addition to subsequent complete softening.

Removal of Color and Organic Compounds From Water

Paper manufacturers generally recognize that a process water supply which contains sufficient

color to affect the appearance of the product must be decolorized. Therefore, the removal of organic colored materials is likely to be a part of the water purification treatment for the mill supply, from which boiler feedwater is also derived. Organic coloring matter is extracted from vegetable materials with which the water remains in contact over a considerable period, and the swamp waters are therefore the most highly colored. Excessive amounts of organic substances are objectionable also when the water is to be used for boiler feed purposes, because they may increase the foaming tendency of the water and thus promote contamination of the steam leaving the boiler. Furthermore, such compounds are highly objectionable because of the tendency to form hard, dense scale.

Like many other undesirable constituents in water, these colloidal compounds are best removed by bringing about their agglomeration with a floc which is precipitated by chemicals aded to the water. Most coloring mater is soluble in alkaline water, but generally is insoluble at a pH value below about 5.0. The optimum pH range for color removal varies with the nature of the compound causing the stain, but generally is between 4.0 and 4.9. Although it may be possible to precipitate alum floc at a pH sufficiently low to give good color removal, this coagulant is frequently objectionable for this purpose because an appreciable portion of it remains in solution at a low pH and may cause after-precipitation when the pH is subsequently raised. Ferric salts can be used to advantage as coagulants to remove colors, because they will form a floc over a wide range of pH. In the relatively acid range which is best for color removal, the precipitate is a bulky floc composed of a basic ferric and organic complex, with adsorption properties which are very superior to those of the ferric floc produced under more alkaline conditions. Consequently, the most effective treatment may employ only the coagulant without the addition of an alkaline chemical, such as lime or soda ash.

Ferric chloride is an effective decolorizing coagulant, but has certain disadvantages with respect to cost and excessive corrosiveness. The same compound can be obtained in solution by feeding copperas (ferrous sulphate) into the coagulating basin and adding chlorine to the solution. The chlorine serves not only as a source of hydrochloric acid, but as an oxidizing agent to convert the iron to the ferric form, and the solution thus formed is a mixture of ferric chloride and sulphate.

Color is removed from water so treated by precipitation, agglomeration and adsorption by the floc. The water is then settled and filtered in equipment which is essentially the same as that which would be used for removal of turbidity. It is customary to adjust the final pH of the filtered water to 7.0 or higher, to inhibit the corrosive properties of the water. High concentrations of organic color can be reduced in this manner to amounts which will not adversely affect the quality of paper or the use of the water for steam generation.

Removal of Silica from Boiler Feedwater

Insoluble silicates are apt to precipitate in boilers on evaporating surfaces which are at high temperatures and which receive rapid heat input, and thus silicate scales are most likely to give trouble in modern boilers designed for high pressures and high ratings. The more readily formed scales are silicates of calcium and magnesium, but since the latter elements are almost entirely eliminated by well designed feedwater treatment, these scales are controlled by efficient softening and supplementary internal treatment. However, complex sodium aluminum silicates of the zeolite group of compounds can form even though ordinary hardness is completely absent, and these deposits are extremely troublesome when they occur. The removal of most of the silica from the feedwater is the necessary corrective treatment when scales of this type are encountered.

While efficient clarification will remove insoluble silica from water, there may remain in true solution or colloidal suspension a considerable concentration of silica. The term "silica" and the designation "SiO_2" are broadly used to cover the numerous compounds of silicic acid which may be present in the water.

Considerable study has been devoted to the promlem of silica removal, both in this country and abroad, especially in Germany. Just as silicic acid forms complex compounds with sodium, aluminum, magnesium and numerous other ions, it also appears to combine loosely with oxides of metals or the alkaline earth elements. The phenomenon may be regarded either as adsorption or as chemical combination, depending on whether the reacting materials are colloidal or in true solution. Patents have been issued for removing silica by precipitating zinc hydroxide, using various zinc salts and alkaline reagents. Another patent covers the addition of iron or zinc hydroxide to the water from which silica is to be removed, and the recovery of the silica-containing sludge and regeneration with acid. It is also possible to use various oxides in the form of gels as filtering media which can be regenerated with dilute alkali solution.

Although some of these processes are still in the experimental or pilot plant stage, there are in this country, at the present time, a number of silica removal plants in which ferric sulphate and caustic soda are added to the water to precipitate ferric hydroxide. When this precipitate is formed and settled at a pH of 8.5 to 9.5, it is possible under optimum conditions to reduce the silica content of the water to 3 parts per million or less. If the sludge is not contaminated with mud or calcium carbonate, it is feasible to dissolve out the silica with sulphuric acid and recover the ferric hydroxide for re-use. However, insofar as we are aware, this recovery has not been put into actual practice, but has potential merit as a means of saving chemicals.

Various types of equipment have been suggested or used for carrying out the precipitation, settling and filtration of the floc. The actual design will depend on space limitations and other engineering factors, and the complexity of the plant will be governed by the necessity for pre-softening and clarification, which will in turn depend on the composition of the raw water. The actual process involves the proportional addition of the feric salts required by the specific water supply, the adjustment of the pH value by alkalies, followed by rapid mixing, slow flocculation, settling and filtration. To adequately design such a plant, basic engineering data should be obtained from a pilot installation. These preliminary studies are necessary because various water supplies differ wide-

ly in the optimum chemical dosage for silica removal, the settling characteristics of the floc, the operating temperatures, and the type of settling equipment required. Much difficulty may be avoided if plant design is preceded by experimental work to establish these data.

Zeolite Softening Preceded by Settling, Lime Softening, and Silica Removal

Preliminary lime or lime-soda softening has potential merit wherever high bicarbonate hardness is encountered and where high turbidity can be reduced by partial or complete clarification concurrently with the softening. These benefits may be desirable when the final treatment is by means of zeolite softening or other processes. This combination feedwater treatment is used at a large steam generating station. The raw water at the plant in question contains a normal turbidity of more than 200 and 100 to 200 parts per million of hardness, most of which is in the form of bicarbonates. The boilers at this plant are operated at 650 pounds pressure, and the exhaust steam from the turbo-generators is used for processing. Because of the condition imposed, the feedwater make-up requirements are practically one hundred per cent. The feedwater purification must be extremely complete under these conditions and it is necessary to reduce the silica content of the raw water from a maximum of 7 parts per million to the lowest possible value. The latter requirement led to the development of the process for removal of silica with hydrous ferric oxide floc, which has been described previously in this paper.

Figure 2 is a flow diagram showing the major features of the water purification system. Lime only is generally used and soda ash is employed occasionally when required. The chemicals are added to the water in two large presedimentation tanks, where they are flocculated by mechanically-operated equipment. This accomplishes partial softening and the removal of a major part of the suspended solids. The clarified water flows from these tanks to a secondary battery where the removal of silica is effected. These tanks are of the ordinary design of plain subsidence tank operated on a fill and draw principle. The settled water is passed through gravity filters to an acid feeding tank, where sulphuric acid is added to reduce the pH for the protection of the zeolite softeners, thus converting part of the sodium carbonate to sulphate. The acid treated water is aerated with compressed air to remove carbon dioxide, and then passes over a baffle into the clear well. The supply from the clear well is pumped through horizontal zeolite pressure softeners and thence to the feedwater storage, from

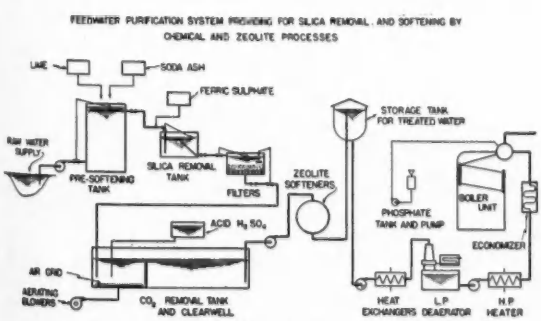


FIG. 2

Feedwater Purification System Providing for Silica Removal, and Softening by Chemical and Zeolite Processes.

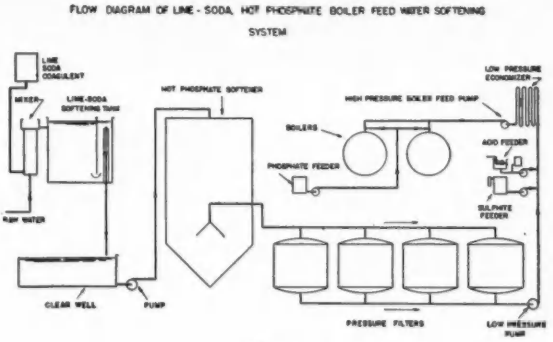


FIG. 3

Flow Diagram of Lime-Soda, Hot Phosphate Boiler Feed Water Softening System.

which the boiler feedwater make-up is drawn. Sodium sulphite is added to the feedwater after deaeration, and sodium metaphosphate is applied directly to the boilers to react with the small residual hardness in the make-up. Final adjustment of the sulphate-alkalinity ratio is effected by means of sodium sulphate. The silica concentration in the boiler waters is kept below 40 parts per million, but a scale containing silica with varying amounts of sodium, aluminum, iron, calcium and magnesium is usually encountered at the end of each run. Proposed alterations to the water treatment plant include the replacement of the natural zeolite mineral with a carbonaceous base exchange medium, and installation of continuous reaction tanks of a new design.

TABLE I.—COMPOSITION OF WATER AT VARIOUS STAGES OF TREATMENT BY COLD LIME SOFTENING, SILICA REMOVAL, AND ZEOLITE SOFTENING

	Raw Water	After Cold Lime Softening	After Silica Removal and Filtration	After Acid Treatment and Aeration	After Zeolite Softening	Boiler Water
Turbidity	300	50	0.2	0	0	25
Total Hardness as $CaCO_3$	168	96	76	74	1	0
Alkalinity as $CaCO_3$	140	52	27	17	16	282
Sulphates as Na_2SO_4	44	44	59	78	78	740
Chlorides as NaCl	46	46	60	60	60	492
Phosphate as PO_4	...	..	..	..	..	90
Silica as SiO_2	6.7	6.5	3.2	3.2	3.2	37
pH	8.1	10.6	9.9	8.1	7.7	
Total Solids	243	..	157	..	187	1794

Table I shows the typical composition of the water at various stages of treatment and after concentration in the boilers.

Hot Process Softening with Phosphates

When a raw water supply of moderate hardness is available, and high-pressure boilers must be operated with a high precentage of feedwater make-up, requiring a maximum efficiency and reduction in total solids in the water, hot process softening with phosphates may prove advantageous. This was the case in the development of a superimposed high-pressure power plant furnishing exhaust steam to the low-pressure turbine from which relatively little condensate was returned. The station had been supplied in the past with feedwater from an intermittent cold process softening plant, which also served to remove turbidity of highly variable amounts. It was feasible to use the partly softened and clarified water for the new plant, and further reduction of the hardness was ac-

complished by hot process softening with phosphates. A flow diagram of this system is shown in Fig. 3.

The water enters a hot process softening tank through a jet heater which elevates the temperature to 225 deg. F. and provides removal of dissolved oxygen. Di-sodium phosphate and caustic soda are added through the standard proportioning apparatus and calcium and magnesium, due to the very low solubility of their phosphates at this temperature are precipitated almost entirely. With an excess of not more than 5 parts per million of soluble phosphate, zero hardness, as indicated by the soap test, is obtained in the effluent. Combination magnetite and anthracite filters are used to avoid contamination with silica. Supplementary chemical deaeration with sodium sulphite is provided for the filtered feedwater, to eliminate oxygen which may be entrained in the system following the softening tank. The feedwater is also treated with sulphuric acid to reduce the pH to about 88. This is done to prevent the deposition of calcium phosphate deposits in feedwater lines, valves and auxiliaries, since such deposits are not formed at a low pH. Moreover, the sodium sulphate required for protection against embrittlement is obtained in this manner without increasing the total solids excessively. The composition of the water at various stages in the treatment is shown in Table II.

TABLE II.—COMPOSITION OF WATER AT VARIOUS STAGES OF TREATMENT BY LIME SODA SOFTENING FOLLOWED BY HOT PHOSPHATE SOFTENING

	Raw Water	After Lime-Soda Softening	After Hot Phosphate Softening	Feedwater (Including Condensate)*	Boiler Water
Turbidity	55	5	0	0	0
Total Hardness as $CaCO_3$	160	15	0	0	0
Alkalinity as $CaCO_3$	116	78	72	34	352
pH	9.4	9.7	9.9	8.9	11.6
Sulphates as Na_2SO_4	89	106	95	110	2400
Chlorides as NaCl	94	110	103	86	900
Phosphate as PO_4	...	...	3.9	3.0	62
Total Solids	344	309	286	230	3711

* pH corrected by acid treatment.

Because of the unavoidably high concentration of total solids in the feedwater, and the necessity of avoiding a blowdown loss that would have been prohibitive, it was felt desirable to install steam washing equipment in the boilers at this station. In these devices the steam is bubbled through the incoming feedwater, and any droplets of boiler water which are entrained in the steam are thereby removed. No deposits have accumulated in turbines or elsewhere in the steam cycle after three years of operation.

New Base-Exchange and Anion-Exchange Materials

One of the most important recent developments in boiler feedwater treatment is the use of new ion-exchanging materials resembling the zeolites in their properties and applications. Of the several new substances which show promise, the so-called carbonaceous "zeolites" have attained practical commercial utilization. Synthetic resins capable of anion exchange, and hydrous oxide gels with zeolitic properties, are at this writing still in the experimental stage.

The carbonaceous zeolites are prepared from coal, peat or other decomposition products of vegetable origin by treating them to yield a highly absorptive, insoluble and stable granular residue. The product is capable of adsorbing salts and acids, and then exchanging the positive ions of these substances for other positive ions. Because they are chemically inert and stable they can be treated with acids to prepare hydrogen "zeolites". When water is filtered through this material, the sodium, calcium and magnesium ions in the water will be replaced with hydrogen ions, and the effluent will contain acids instead of salts. On the other hand, the carbonaceous zeolites may be treated with brine and operated in the sodium cycle like the previously known zeolites, instead of the hydrogen cycle. In this application they provide a non-siliceous softening mineral which is especially useful where it is necessary to scrupulously avoid contamination of the feedwater with even traces of silica.

The hydrogen zeolite process is especially useful in reducing total solids when the raw water contains large amounts of bicarbonates, because these salts can be completely eliminated. Designating the inert carbonaceous zeolite by Z and regarding it as a bivalent negative ion, the characteristic softening reactions may be represented as follows:

$$H_2Z + Ca(HCO_3)_2 \rightleftarrows CaZ + H_2CO_3$$
$$H_2Z + 2NaCl \rightleftarrows Na_2Z + 2HCl$$
$$H_2Z + Na_2SO_4 \rightleftarrows Na_2Z + H_2SO_4$$

Regeneration with sulphuric acid involves the following reactions:

$$\left.\begin{matrix} CaZ \\ Na_2Z \end{matrix}\right\} + H_2SO_4 \rightleftarrows H_2Z + \left\{\begin{matrix} CaSO_4 \\ Na_2SO_4 \end{matrix}\right.$$

It will be noted that carbonic acid is produced from bicarbonates. This can be eliminated by aeration, or degasification under vacuum, to flash the carbon dioxide out of solution, as indicated by the following reaction:

$$H_2CO_3 \rightleftarrows H_2O + CO_2$$

In this matter the mineral content of a water high in bicarbonates can be markedly reduced, providing a feedwater which is superior because less blowdown will be required to keep the concentration of the boiler salines within the required limit.

The hydrochloric and sulphuric acids which are also produced in the hydrogen zeolite process must be neutralized, and the quantities of these acids relative to the carbonic acid largely determine the merit of the treatment for any specific water supply. Neutralization may be effected by alkalies, by adding a portion of untreated water, or by softening part of the water with sodium zeolites and mixing the effluents from the two processes. The latter scheme is incorporated in the feedwater treatment for a large central station. Figure 4 is a flow diagram of the feedwater treatment system. Part of the city water is passed through a sodium zeolite system and part through a hydrogen zeolite system, the mixture discharging into a forced draft degasifying tower which removes all but about 15 parts per million of the carbon dioxide arising from the initial bicarbonate hardness of 155 parts per million.

The water from the two systems is mixed in the proportion of 37 per cent hydrogen zeolite water and 63 per cent sodium zeolite water, by means of rate of flow controllers. Trisodium phosphate is added directly to the boilers to provide protection against any trace of residual hardness that may remain and to slightly increase the alkalinity. Table III shows the composition of the water at various stages in the treatment. It will be noted that the total solids in

the raw water are 459 parts per million, while after treatment they have been reduced to 319 parts per million. When the hardness in the water is more largely bicarbonate in form, instead of sulphate as in this case, a much greater reduction in total solids can be obtained.

TABLE III.—COMPOSITION OF WATER AT VARIOUS STAGES OF TREATMENT BY COMBINATION HYDROGEN ZEOLITE AND SODIUM ZEOLITE PROCESS

	City Water	(A) Hydrogen Zeolite Effluent	(B) Sodium Zeolite Effluent	Mixture 37% A (after aeration) + 63% B
Total Hardness as $CaCO_3$	239	0	0	0
Alkalinity as $CaCO_3$	155	0	...	15
Sodium Bicarbonate, $NaHCO_3$	...	0	280	...
Sulphate as Na_2SO_4	281	0	281	281
Chlorides as NaCl	23	0	23	23
Sulphuric Acid, H_2SO_4	...	194	...	...
Hydrochloric Acid, HCl	...	14	...	...
Free CO_2	...	138	...	15
Total Solids	459	...	...	319
Ratio $\frac{Na_2SO_4}{Na_2CO_3}$	...	...	...	17.5

Complete elimination of all dissolved solids from water, and the production of a supply approaching distilled water in quality, can be accomplished if the effluent from the hydrogen zeolite system is passed through a medium which exchanges hydroxyl ions for negative ions. This has been done experimentally by means of synthetic resins analogous to the phenol-formaldehyde resins, of which plastics like bakelite are familiar examples. The resins are treated with dilute caustic solution to prepare what may be designated as a hydroxide form of the material. When dilute acid solutions are passed through a filter bed of this substance, the hydroxide combines with the hydrogen ions of the acids, and sulphate, chloride, or other anions are retained by the resin, yielding an effluent which is essentially pure water. Designating the resinous substance as R, and assuming it to be capable of combining with negative ions, the neutralization occurs according to the following reactions:

$$2R.OH + H_2SO_4 \rightleftarrows R_2SO_4 + 2H_2O$$
$$R.OH + HCl \rightleftarrows RCl + H_2O$$

Regeneration:

$$R_2SO_4 + 2NaOH \rightleftarrows Na_2SO_4 + 2R.OH$$
$$RCl + NaOH \rightleftarrows NaCl + R.OH$$

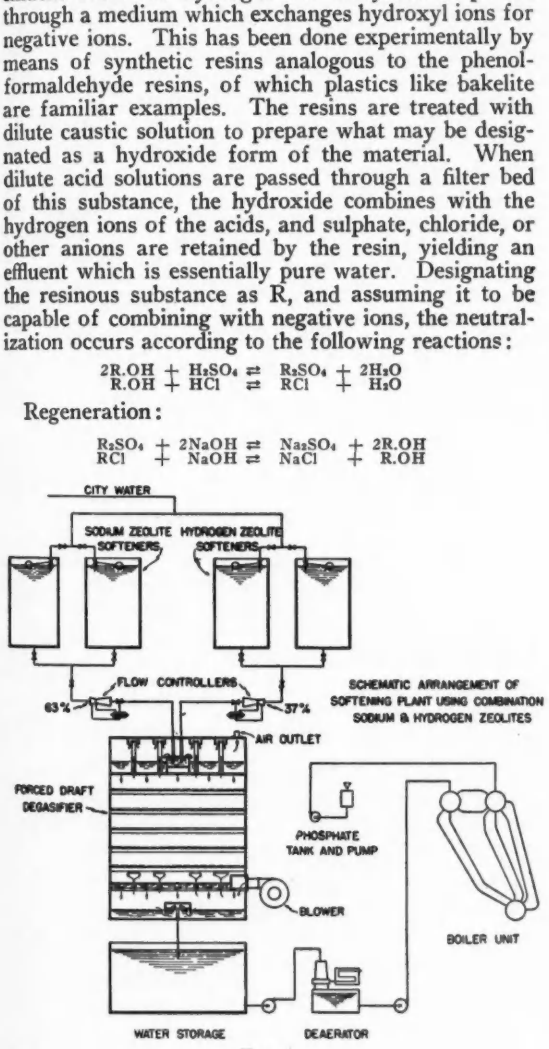


FIG. 4
Schematic Arrangement of Softening Plant Using Combination Sodium and Hydrogen Zeolites.

FIG. 5
Filter Sand Before and After Cleaning With Sulphur Dioxide.

The attractive possibilities for producing feedwater equivalent to evaporated make-up by this process have not been realized as yet on any large commercial scale. However, there is reasonable assurance that the material will be available for practical use in the immediate future.

Sulphurous Acid as a Water Treatment Chemical

A recent development in water treatment is the use of sulphurous acid, prepared by dissolving gaseous sulphur dioxide. One of the applications of this chemical which has proceeded beyond the experimental stage is the cleaning of filter sand.

Filter sand gradually acquires a coating of materials precipitated from the water. These deposits may be organic slimes, iron and manganese, or calcium salts. Eventually the effective size of the grains is increased and the filtering efficiency is impaired so that it becomes necessary to clean or replace the sand. The cleaning of sand in the past has been done by passing the sand through mechanical washers, or by using reagents such as caustic soda and inhibited acids. The mechanical process is costly and time-consuming and the strong chemicals involve danger of corrosion of equipment and injury to the operators.

It has been discovered that sulphurous acid[2], in a solution sufficiently weak to eliminate danger to equipment or operators, will remove deposits from sand grains very effectively. The chemical is easily controlled by dissolving the gas in water and bringing about the desired dilution in the filter bed. When manganese is to be removed, the sulphurous acid reduces the manganese dioxide, and its efficacy does not depend on strong acidity. In general, iron removal requires a higher acid concentration or a small supplementary dose of a mineral acid. However, in the case of iron and manganese, only partial removal of the oxide deposit is desired, since the filter bed is not effective unless an active coating of the oxides remains. The photograph of Fig. 5 shows specimens of filter sand before and after cleaning

[2] U. S. Patent No. 2,069,621, issued to J. G. Patrick and assigned to the West Virginia Pulp and Paper Company.

with sulphurous acid. Specimen A was cleaned in the laboratory of the Department of Civil Engineering at New York University, and was kindly supplied by Professor Lewis V. Carpenter. Specimen B is from the Municipal Filtration Plant of Batavia, New York, and was made available by the inventor of the process, J. G. Patrick, of the West Virginia Pulp and Paper Company.

Liquid sulphur dioxide is readily available in portable steel cylinders and has been supplied in this form for the cleaning of filter sand described above. As an alternate procedure the sulphur dioxide solution can be prepared readily by burning sulphur in a small burner and absorbing the gas in water. The solid sulphur is non-corrosive, easily handled, and readily available.

Degree of Gelatinization of Cellulose and Wood*

By Edwin C. Jahn[1]

A TAPPI fundamental research grant of $600 was given to the School of Forestry of the University of Idaho to aid a study of the measurement of the gelatinization of cellulose and wood. A portion of this grant was spent for equipment and the major part was used to support a TAPPI research fellowship. Most of the results discussed in this progress report were obtained by Arthur Sedoff, TAPPI Fellow during the past academic year.

The purpose of this study is to investigate the relation of the per cent water retained by a cellulosic mat under pressure to the physical properties of the cellulose fibers or wood particles and particularly to determine the relationship of water retention to changes in stuff and sheet properties brought about by beating.

When cellulose is beaten in a paper mill beater or otherwise comminuted in water, the surface of the fibers gradually takes on a smooth or slippery feel. The structure of the fiber becomes loosened and its various parts begin to separate and are broken down with the development of a slime, as in the preparation of a glassine stock. Sufficiently drastic comminution completely breaks down the grosser fiber structure to a slime or gel, which upon drying forms a hard, horny mass. Wood may be brought into a similar condition, but requires more drastic comminution. Such treatment of cellulosic materials is frequently referred to in the literature as mechanical gelatinization.

In connection with research at the Idaho School of Forestry on the molding of hard, strong materials from comminuted wood, we found it desirable to obtain a measure of the degree of gelatinization or of comminution. Beating time itself was meaningless except for materials beaten under identical conditions. Freeness and slowness measurements were impossible, because of the long time necessary in many cases and because considerable solid material is lost through the screens.

It was observed that, when wet cakes of the beaten material were pressed under high pressures under certain definite conditions, there appeared to be a relation between the per cent water retained by the cellulosic cake and the degree of beating or of gelatinization. For dractically comminuted materials, this seemed to be a workable test. Therefore, it seemed worthyhile to explore this factor further and more critically.

The term "degree of gelatinization" is arbitrarily and perhaps temporarily used in this report as the per cent water retained by a pulp mat of certain size and original moisture content, when pressed under high pressure. Unless otherwise stated, the expression assumes that a pressure of two tons per square inch was applied to the pulp mat for ten minutes.

The term "gelatinization" may not be advisable in connection with water retention, and its use should be considered tentative. The term was first used in connection with this work because we were dealing with drastically beaten wood and cellulose which had been altered to a more or less structureless slimy gel. The term "gelatinization" is often used, though rather loosely, to imply not only colloidal hydration and resultant swelling but micellar disorientation and slime or gel formation.

Gelatinization may be considered essentially synonymous with colloidal hydration in that it means the dispersion of water into a solid or the increase in internal water with resultant swelling. In this sense, the term is sometimes used in connection with beating. For example, Kress and Bialkowsky, *(4)* who found that beating in non-swelling liquids caused almost no alteration in freeness, state, "Liquids which do not possess the swelling power toward fibers, such as fuel oil and the higher alcohols, do not gelatinize pulp upon mechanical treatment, while liquids which show a high or a proportionate swelling gelatinize pulp in proportion to their swelling power."

Colloidal hydration results on simple immerson or contact of pulp with water and drastic beating causes only a very slight increase in this hydration, as measured by sorption experiments. The changes in pulp properties by beating cannot, therefore, be explained by colloidal hydration or capillary imbibition, but are the result of a combination of physical changes, often termed "papermakers' hydration." If gelatinization be defined as synonymous with colloidal hydration, a measure of per cent water retention does not measure gelatinization, since very little increase in hydration occurs by beating. If micellar disorientation and slime formation be brought into the picture, the slime produced by drastic beating might cause a higher water retention under pressure due to resistance to free flow.

The terminology of the changes taking place by beating pulp is confusing, and terms such as hydra-

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Waldorf-Astoria Hotel, New York, N. Y., Feb. 21-24, 1938.
Progress Report on Fundamental Research Project of TAPPI at the University of Idaho.

[1] Member TAPPI, Professor, School of Forestry, University of Idaho, Moscow, Idaho.

tion are frequently misused. However, regardless of terms or the properties underlying certain measurable factors, such as per cent water retention under pressure, freeness, etc., the factors themselves provide or may provide a means for measuring and controlling practical industrial procedures. Further study of these measurable factors and the conditions which cause them to vary, should also give better insight into the inherent pulp properties which control and are manifested in the tests.

The data obtained indicates that the "degree of gelatinization" depends upon properties of the pulp stuff and also correlates with certain inherent properties of the dry pulp mat or cake. Therefore, a study of this factor should be of practical importance.

Experimental Procedure and Data

In all tests commercial bleached western hemlock sulphate pulp was used. It was disintegrated in tap water, but beating and subsequent steps were done in distilled water.

All beating and gelatinizing was done in a 12 x 24 inch (inside measurements) stainless steel rod mill containing 25 stainless steel rods ⅞x23 inches and weighing 1794 grams each. The maximum beating time was 48.5 hours.

For measuring water retention the pulp was first brought to approximately 60 per cent water. Two gram samples (oven-dry equivalent) of this wet plup were pressed between moist felts in a one square inch plunger type mold. Varying conditions of pressure and time were used. The per cent water retained was measured, as also were the per cent "elastic contraction" of the moist cake upon release of the pressure and the per cent shrinkage of the pulp cake after drying.

The results obtained in this investigation to this date include data on the following: the effect of the original sample size on the moisture content of the pulp pressed preparatory for the water retention procedure, the effect of the original moisture content of the prepared sample on the degree of gelatinization, the variation of the degree of gelatinization and the linear shrinkage of pulps beaten various periods of time with the time and pressure of forming the pulp cakes, the variation of the degree of gelatinization values obtained by different pressing conditions with the beating time, a comparison of linear shrinkage and elastic contraction with the degree of gelatinization and with beating time for pulps beaten different times and pressed under different conditions, and the relation between slowness, mat thickness, water retention (unpressed) and degree of gelatinization for differently beaten pulps.

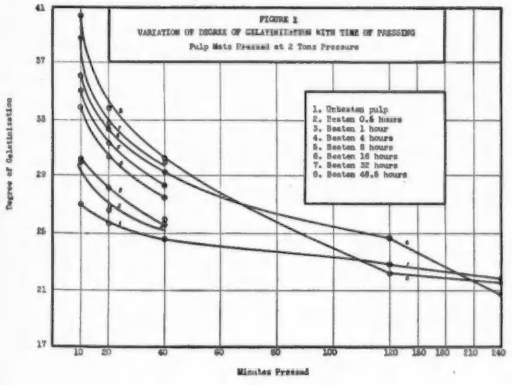


FIGURE 1
VARIATION OF DEGREE OF GELATINIZATION WITH TIME OF PRESSING
Pulp Mats Pressed at 2 Tons Pressure
1. Unbeaten pulp
2. Beaten 0.5 hours
3. Beaten 1 hour
4. Beaten 4 hours
5. Beaten 8 hours
6. Beaten 16 hours
7. Beaten 32 hours
8. Beaten 48.5 hours
Degree of Gelatinization
Minutes Pressed

FIG. 1

Discussion of Data

The data obtained to date are insufficient to prove or disprove the practicality of measuring the water retention property of a pulp. It is sufficient, however, to permit certain conclusions with respect to the methods experimented with in this work, and also to indicate that fundamentally the water retention factor is dependent upon the inherent properties of the pulp and might therefore be of practical value. It also indicates further work to determine more closely the relationships of water retention to other pulp property indices and better means of measuring them.

EFFECT OF MOISTURE CONTENT OF SAMPLE ON DEGREE OF GELATINIZATION:

The original moisture content of the sample has an effect on the water retained under pressure, particularly on the unbeaten and less beaten pulps, but not so large as might be expected. In previous work (*5*) it was found that a moisture content of about 60 per cent could be conveniently obtained. This technique was improved and more closely standardized so that the samples were brought within a fairly narrow moisture content range.

EFFECT OF DIFFERENT PRESSURES AND TIME OF PRESSING ON THE DEGREE OF GELATINIZATION:

The amount of water retained by pulp in a mold varies with the pressure applied and the time of pressing. The effect of increasing the pressure from two to five to fifteen tons affects the per cent water retained comparatively little. However, with longer time for expressing water, the differentiation between the water retained by pulps differently beaten disappears. The values for water retained all tend to approach the same constant value. As Fig. 1 shows, unbeaten pulp and pulp beaten 48.5 hours retained 26.9 per cent and 40.4 per cent water respectively when pressed for 10 minutes at 2 tons pressure, but after pressing 4 hours at the same pressure the values were 21.9 and 21.7. This would be expected on the basis of the sorption experiments at McGill University *(2)*, the Pulp and Paper Division of the Canadian Forest Products Laboratories *(1)*, the Forest Products Laboratory at Madison *(7, 8, 10)*, and elsewhere *(9)*, which indicate no significant or very small differences in the sorbed water of beaten and unbeaten pulps. The differences in per cent water retained by the pulp under certain arbitrary conditions, such as pressing for 10 minutes at 2 tons pressure, is apparently due to the physical and structural differences in the pulp mat brought about by beating. Beating inhibits the flow of free water from the pulp mats under the conditions used.

CORRELATION OF DEGREE OF GELATINIZATION WITH LINEAR SHRINKAGE:

Although the per cent error in measuring the linear shrinkage of the pressed pulp cakes is fairly high due to the irregularities in shape, the average values indicate a definite correlation with degree of gelatinization. The relationship for pulp samples pressed at 2 tons pressure for 10 minutes is nearly a straight line relationship. This was also found to be the case with beaten sawdust in a previous work *(5)*. With increased pressure and time, however, the relationship

becomes increasingly a horizontal parabolic curve. Some of these relationships are shown in Fig. 2.

It was found upon releasing the pressure on the wet pulp cake that the cake, when immediately measured, invariably had a smaller diameter than the diameter of the mold (1.15 inches). This change in shape was 2.22 per cent for unbeaten pulp and only 0.32 per cent for pulp beaten one hour (pressed at 2 tons for 10 minutes). Further beating caused a gradual but small increase in per cent "elastic contraction" (Fig. 2). However, if the cakes were pressed for longer periods of time or at higher pressures there was no great difference between the differently beaten pulps and the unbeaten pulp.

Apparently when unbeaten pulp is pressed at 2 tons pressure for 10 minutes the stiffness of the unbeaten pulp fibers causes a size and shape change on release of pressure. With more drastic pressing either the elastic limit of the fibers has been overcome or they have been brought into such close contact that the internal surface tension forces overcome the stiffness of the fibers, or both these causes play a role.

Relation of Degree of Gelatinization to Water Retained by Pulp Mat After Slight Suction:

Water retained by pulp mats under very mild suction for thirty seconds decreased with beating until the beating was fairly drastic (1 to 4 hours), after which retention slowly increased. This would be expected on the basis of Strachan's *(11)* findings. He reported that with pressures under 10 pounds per square inch the water retained decreased with beating. In contrast, the values for water retained by pulp pressed at 2 tons per square inch for 10 minutes show a continuous increase with beating time.

Under little pressure, fiber stiffness causes a looser mat in unbeaten pulp which retains more water than mildly beaten pulps. With greater beating, finer particles and slime probably offer resistance to flow causing an increase in water retention. Under high pressure this resistance to flow by "fiber fines" may be increased, whereas any stiffness effect is probably reduced by the pressure.

Conclusions from Data Completed and Work in Progress

Consistent differences may be measured in the per cent water retained by mats of differently beaten pulps when pressed under certain standardized conditions. However, the conditions thus far used were not sufficiently sensitive to give a suitable index of the changes occurring in pulp beaten for short periods of time, as in general mill practice. For drastically beaten pulps the method gives better values. However, the data indicate that of the conditions tried, the least drastic (2 tons and 10 minutes) gave the best differentiation and accuracy. It is quite possible that under less severe pressing conditions the method may be more sensitive and accurate. Apparently the pressures used were above the point where increased pressure affects water retention to any great extent. The effect of increasing the time under pressure is to bring all pulps, regardless of degree of beating, to a uniform water content.

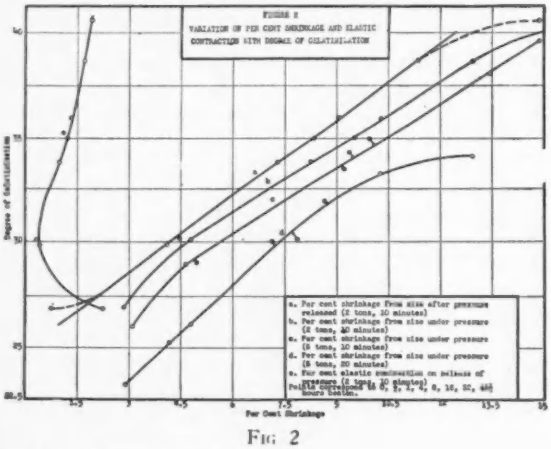


FIGURE 2
VARIATION OF PER CENT SHRINKAGE AND ELASTIC CONTRACTION WITH DEGREE OF GELATINIZATION
Degree of Gelatinization
Per Cent Shrinkage

Fig. 2

Since measurement of water retention under pressure gives values which vary with the properties of the stuff and since the water retention values correlate with a density factor of the dry pulp mat (per cent linear shrinkage), the test must depend upon the inherent physical properties of the pulp, and should therefore be of practical value. The importance of density to other sheet properties is known from Doughty's *(3)* work. The shrinkage of a pulp sheet or mat depends upon the physical condition of the fibers. Physical differences brought about by beating cause differences in shrinkage and in water retention values. Particle size (fibrillation, fines, slime, etc.) and fiber elasticity, both of which would determine the structure of the mat and the internal spaces, would be expected to control shrinkage and also, to a large extent, water retention.

However, water retention under high pressures may not be affected by fiber elasticity as much as by other factors, since the rigidity of the fibers in the mat is likely reduced by the pressures used. The values obtained in this work, therefore, might be dependent more on other stuff properties than fiber stiffness. Furthermore, the effects of these other properties, such as fibrillation, fines, and slime, may be enlarged under high pressure, due to their resistance to water flow when compressed in a mold. Further work is being pursued to determine the effect of various stuff properties on water retention, and, vice-versa, to use water retention values to obtain mathematical expressions for certain fiber and stuff properties.

Work that is in progress and planned in order to complete this study involves (1) measurement of water retention over a broader range of conditions in order to secure optimum conditions for greatest accuracy and sensitivity, (2) a study of the relationship of water retention to other pulp property indices, and (3) a study of the effect of various pulp stuff properties on water retention and the use of water retention values to obtain mathematical expressions for certain fiber and stuff properties.

Literature Cited

(1) Campbell, W. B. Forest Service Bull. 84, Dept. of Interior, Ottawa, Canada. 52 pages. (1933).
(2) Campbell, W. B. and Pidgeon, L. M. *Pulp and Paper, Canada*, 29, 185-190, (1930).
(3) Doughty, R. H. *Paper Trade Jr.*, 93, T. S. 162-167, (1931).
(4) Kress, O. and Bialkowsky, H. *Paper Trade J.*, 93, T. S. 219-228, (1931).
(5) McCarthy, J. L. and Jahn, E. C. *Paper Trade J.*, 103, T. S. 161, (1936).
(6) Russell, J. K., Maass, O. and Campbell, W. B. *Can. J. Res.* 15, Sec. B, 13-37, (1937).
(7) Seborg, C. O., Simmonds, F. A. and Baird, P. K. *Ind. Eng. Chem.*, 28, 1245-1250, (1936).
(8) Seborg, C. O. and Stamm, A. J. *Ind. Eng. Chem.*, 23, 1271-1275, (1931).
(9) Sheppard, S. E. and Keenan, R. *Ind. Eng. Chem.*, 26, 285-290, (1934).
(10) Stamm, A. J. U. S. Dept. Agr. Misc. Publ. No. 240. (June, 1936).
(11) Strachan, J. *Proc. Tech. Sect. P. M. Asso. Gr. Br. and Ire.*, 6, Part 2, 139-169, (1926).

Imports of Paper and Paper Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports, of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard, Wallboard, Cigarette Papers, Sulphite, Kraft and Ground Wood Pulp.

NEW YORK IMPORTS

WEEK ENDING AUGUST 27, 1938

SUMMARY

Cigarette paper .....997 cs.
Wall paper .....2 cs.
Wall board .....126 crates
Newsprint .....12,920 rolls
Filter paper .....24 bls., 13 cs.
Drawing paper .....2 cs.
Surface baryta coated paper .....23 cs.
Surface coated paper .....92 cs.
Photo paper .....13 cs.
Decalcomanias .....16 cs.
Tracing cloth .....32 cs.
Fancy paper .....2 cs.
Miscellaneous paper .....72 rolls, 1 cs.

CIGARETTE PAPER

H. H. Strauss, *Pipestone County,* Bordeaux, 347 cs.
Champagne Paper Corp., *Paris,* Havre, 650 cs.

WALL PAPER

F. J. Emmerich, *Laconia,* Liverpool, 1 cs.
——, *Bremen,* Bremen, 1 cs.

WALL BOARD

H. G. Craig Co., Inc. *Newscarrier,* Donnacona, 126 crates.

NEWSPRINT

Jay Madden Corp., *Blankaholm,* Kotka, 153 rolls.
News Syndicate Co., Inc., *Louisianan,* Comeau Bay, 5817 rolls.
H. G. Craig Co., Inc., *G.T.D.,* Donnacona, 353 rolls.
H. G. Craig Co., Inc., *A.C.D.,* Donnacona, 393 rolls.
International Paper Sales Co., *Cornerbrook,* Dalhousie, 4521 rolls.
International Paper Co., *International No. 1,* Gatineau, 313 rolls.
Canadian International Paper Co., *International No. 1,* Gatineau, 356 rolls.
Lunham & Reeve, Inc., *Scanmail,* Wiborg, 109 rolls.
Jay Madden Corp., *Scanmail,* Kotka, 403 rolls.
Lunham & Reeve, Inc., *Scanmail,* Kotka, 173 rolls.
H. G. Craig Co., Inc., *Newscarrier,* Donnacona, 329 rolls.

FILTER PAPER

Rohner Gehrig & Co., *Pipestone County,* Bordeaux 24 bls.
H. Reeve Angel & Co., Inc., *American Farmer,* London, 13 cs.

DRAWING PAPER

Japan Paper Co., *American Farmer,* London, 2 cs.

SURFACE BARYTA COATED PAPER

L. A. Consmiller, *Bremen,* Bremen, 11 cs.
——, *Koingstein,* Antwerp, 12 cs.

SURFACE COATED PAPER

Gevaert Co. of America, *Black Gull,* Antwerp, 92 cs.

PHOTO PAPER

J. J. Gavin Co., *Queen Mary,* Southampton, 12 cs. (unsensitized).
Medo Photo-Supply Co., *American Farmer,* London, 1 cs.

DECALCOMANIAS

Sellers Transportation Co., *Bremen,* Bremen, 16 cs.

TRACING CLOTH

E. Dietzgen & Co., *Laconia,* Liverpool, 5 cs.
C. Bruning Co., Inc., *Bremen,* Bremen, 27 cs.

FANCY PAPER

C. A. Haynes & Co., *Queen Mary,* Southampton, 2 cs.

MISCELLANEOUS PAPER

C. A. Redden, *Ile de France,* Havre, 1 cs.
——, *Gripsholm,* Gothenburg, 72 rolls.

RAGS, BAGGINGS, ETC.

Royal Manfg Co., *H. Jaspar,* Antwerp, 95 bls. cotton waste.
Hughes Fawcett, Inc., *Cameronia,* Glasgow, 96 bls. flax waste.
Chase National Bank, *Artigas,* Liverpool, 37 bls. bagging.
Chase National Bank, *Pipestone County,* Bordeaux, 14 bls. rags.
Manufacturers Trust Co., *R. Maersk,* Antwerp, 30 bls. rags.
Manufacturers Trust Co., *Laconia,* Liverpool, 10 bls. rags.
J. Cohen & Son Co., Inc., *Laconia,* Liverpool, 10 bls. rags.
Public National Bank Trust Co., *Laconia,* Liverpool, 8 bls. rags.
——, *Laconia,* Liverpool, 76 bls. rags.
Keene, Inc., *Extavia,* Alexandria, 167 bls. burlaps.
W. J. Green Co., Inc., *Extavia,* Alexandria, 71 bls. rags.
W. Steck & Co., *Extavia,* Alexandria, 170 bls. bagging.
E. J. Keller Co., Inc., *Extavia,* ——, 214 bls. rags, 27 bls. old canvas.
Darmstadt Scott & Courtney, *Black Gull,* Rotterdam, 23 bls. bag scrap.
Darmstadt Scott & Courtney, *Black Gull,* Antwerp, 90 bls. bagging.
Stone Klous Co., *Gripsholm,* Gothenburg, 7 bls. rags.

GLUE STOCK

——, *R. Maersk,* Antwerp, 673 bls.

OLD ROPE

W. Steck & Co., *Black Hawk,* Rotterdam, 74 coils.
W. Steck & Co., *Pipestone County,* Havre, 61 coils.
W. Steck & Co., *R. Maersk,* London, 64 pkgs.
G. W. Millar & Co., Inc., *Laconia,* Liverpool, 122 coils.
Banco Coml Italiane Trust Co., *American Farmer,* London, 39 coils.
Chase National Bank, *Konigstein,* Antwerp, 57 coils.

WOOD PULP

The Borregaard Co., Inc., *Oslofjord,* Sarpsborg, 1008 bls. sulphate.
Castle & Overton, Inc., *Black Hawk,* Rotterdam, 650 bls. wood pulp, 130 tons.
Chase National Bank, *Birmania,* Trieste, 338 bls. wood pulp.
M. Sone, *Birmania,* Trieste, 980 bls. wood pulp.
M. Sone, *New York,* Hamburg, 392 bls. wood pulp.
Castle & Overton, Inc., *Blankaholm,* Viipuri, 503 bls. wood pulp.
Pulp Sales Corp., *Blankaholm,* Viipuri, 2000 bls. sulphate, 254 bls. sulphite.
Pulp Sales Corp., *Scanmail,* Wiborg, 8114 bls. sulphite, 1561 tons.

WOOD PULP BOARDS

Jay Madden Corp., *Scanmail,* Kotka, 123 rolls, 52 tons.

ALBANY IMPORTS

WEEK ENDING AUGUST 27, 1938

Price & Pierce, Ltd., *Scanmail,* Stockholm, 600 bls. sulphite, 101 tons.
International Paper Co., *Jessie Maersk,* Sheet Harbor, N. S., 1500 cords pulpwood.
——, *Loch Maddy,* Chatham, N. B., 3156 cords pulpwood.

PORTLAND IMPORTS

WEEK ENDING AUGUST 27, 1938

M. Sone, *Konigsberg,* Hamburg, 2925 bls. wood pulp.
Parsons & Whittemore, Inc., *City of Flint,* ——, 334 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING AUGUST 27, 1938

——, *Black Hawk,* Antwerp, 314 bls. rags, 83 bls. thread-waste.
American Express Co., *Black Hawk,* Antwerp, 198 rolls wrapping paper.

L. W. Cronkhite, Inc., *Port Halifax,* Auckland, 13 bags casein.
M. Sone, *Konigsberg,* Hamburg, 1016 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING AUGUST 27, 1938

——, *Artigas,* Manchester, 19 bls. cotton waste.
Castle & Overton, Inc., *Pipestone County,* Bordeaux, 116 bls. rags.
Philadelphia National Bank, *R. Maersk,* London, 14 bls. rags.
Chase National Bank, *Birmania,* Trieste, 506 bls. wood pulp.
Castle & Overton, Inc., *Black Gull,* Rotterdam, 107 bls. rags.
Philadelphia National Bank, *Black Gull,* Antwerp, 231 bls. rags.
F. Weber & Co., *Black Gull,* Antwerp, 21 cs. drawing paper.

WILMINGTON IMPORTS

WEEK ENDING AUGUST 27, 1938

Chase National Bank, *Birmania,* Trieste, 3323 bls. wood pulp.
Lagerloef Trading Co., *Blankaholm,* Kotka, 110 bls. mechanical pulp.
Jay Madden Corp., *Blankaholm,* Kotka, 135 rolls newsprint.
Jay Madden Corp., *Blankaholm,* Viipuri, 1138 rolls woodpulp boards.
Castle & Overton, Inc., *Blankaholm,* Viipuri, 3426 bls. wood pulp.
Pulp Sales Corp., *Blankaholm,* Viipuri, 3081 bls. sulphite.

BALTIMORE IMPORTS

WEEK ENDING AUGUST 27, 1938

Congoleum-Nairn Co., *Pipestone County,* Bordeaux, 1138 bls. rags.
Pagel Horton & Co., Inc., *Kelkheim,* Sweden, 500 bls. wood pulp.

NEWPORT NEWS IMPORTS

WEEK ENDING AUGUST 27, 1938

International Paper Sales Co., *Cornerbrook,* Dalhousie, 2507 rolls newsprint.

SAVANNAH IMPORTS

WEEK ENDING AUGUST 27, 1938

——, *Toledo,* Gefle, 3000 bls. wood pulp.
——, *Toledo,* Gefle, 78 rolls wrapping paper.
——, *Toledo,* Gefle, 1088 rolls newsprint.
——, *Toledo,* Kotka, 1037 rolls, 465 bls. newsprint.

MONTREAL IMPORTS

WEEK ENDING AUGUST 27, 1938

M. Sone, *Francois, L.D.,* Sundsvall, 1800 bls. wood pulp.
Pagel Horton & Co., Inc., *Francois, L.D.,* Sweden, 9600 bls. wood pulp.
Pagel Horton & Co., Inc., *Lagaholm,* Sweden, 11750 bls. wood pulp.
Pagel Horton & Co., Inc., *Idefjord,* Sweden, 8100 bls. wood pulp.
Gottesman & Co., Inc., *Idefjord,* Sweden, 5100 bls. unbleached sulphate, 3635 bls. unbleached sulphite.
Gottesman & Co., Inc., *Francois, L.D.,* Sweden, 2010 bls. unbleached sulphite.

How to Prevent Rutted Floors

How to Prevent Rutted Floors—a "just-off-the-press" pamphlet, prepared by Stonhard Company, shows how to keep floors smooth, safe, and sanitary; even where subjected to constant abrasion, and the more severe conditions of excessive oil, water, grease, acids and other foreign matter. This pamphlet also tells how to prevent "concrete dust", and by actual photographs exposes the most frequent sources of floor disintegration, showing how to stop this trouble quickly and effectively. A copy may be had by writing Stonhard Company, 410 No. Broad street, Philadelphia, Penna.

Canadian Newsprint Exports

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., August 29, 1938—Newsprint producers here are hopeful that the July figures of exports may be taken as evidence that a trend for the better has set in regarding the consumption of newsprint. As compared with the exports for June, the totals for July, just made public, shows an increase in volume of 126,319 cwt., and an increase in value of $281,793. Although the totals were down for July by 22.36 per cent as compared with July, 1937, the trend was different, for last year's July exports were 28,648 cwt. lower in volume than in the previous months and $167,253 lower in value.

The total of volume of exports in July last was 4,016,732 cwt. valued at $8,723,502, as compared with 6,103,263 cwt., valued at $11,234,434 in July, 1937. This brought the total for the first four months of the present fiscal year to 15,823,066 cwt., valued at $34,280,481, as compared with 23,186,502 cwt., valued at $42,586,657.

One point to be noted is that the increase in the July exports was fully accounted for by shipments to countries other than the United States, for volume of exports to the latter country were lower than in June by 63,431 cwt., and the value lower by $106,803. The principal countries to which larger shipments were made were Australia, with 458,318 cwt., valued at $970,869, as compared with 378,863 cwt., valued at $840,618 in June; New Zealand, with 66,940 cwt., valued at $144,522, as compared with 44,532 cwt., valued at $85,755; Argentina, with 49,904 cwt., valued at $132,279 as compared with 26,878 cwt., valued at $67,755; Cuba, with 21,644 cwt., valued at $46,558, as compared with 16,722 cwt., valued at $36,305; British South Africa, with 35,754 cwt., valued at $82,277, as compared with 14,580 cwt., valued at $33,433; Ireland (Eire), with 60,579 cwt., valued at $87,352, as compared with 17,820 cwt., valued at $23,950; Belgium, with 11,230 cwt., valued at $20,249, as compared with none in June; Hawaii, with 11,028 cwt., valued at $30,364, as compared with 5,596 cwt., valued at $15,391; and Puerto Rico, with 11,542 cwt., valued at $22,271, as compared with 1,805 cwt., valued at $3,425.

Exports of bleached sulphite pulp in July amounted to 287,746 cwt., valued at $962,140, as compared with 285,235 cwt., valued at $933,819 in June; unbleached sulphite, 178,132 cwt., valued at $351,778, as compared with 75,614 cwt., valued at $150,087 in June. Total exports of pulp were 748,024 cwt., valued at $1,867,581, as compared with 714,143 cwt., valued at $1,672,126 in June and 1,443,302 cwt., valued at $3,630,824 in July, 1937.

Manuscript Covers

An extremely attractive sample book of L. L. Brown's Linen, Linen Typewriter and Manuscript Covers, has just been issued. It shows the complete range of weights in both laid and wove finishes in which Brown's Linen is stocked, as well as the pastel shades of manuscript covers.

Brown's Linen is one of the first lines produced by the L. L. Brown Paper Company nearly a century ago. It is made from 100 per cent white linen and cotton clippings and embraces weights from substance 7 to 24.

Copies of the book may be had direct from the company or its distributors.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, August 31, 1938.

The prevailing opinion in the wholesale paper market apparently indicates that the current month has been a period of relatively low business activity this year, as in past years. In general, mill representatives, jobbers and general wholesale paper merchants, report a decline in sales volume for August below that of July. Many distributors however, report sales up to the middle of the current month have been higher than in June, although under the business done in July.

The business situation for the current week may be summed up as encouraging and the trend upward. The index of general business activity by which the general pace of the whole country is commonly measured, such as car loadings, steel production, etc., shows a small increase for this week. Production of a relatively large number of important paper mills also shows a small gain for the week. In the opinion of many in the trade, conditions are gradually improving and a steady improvement is the reasonable expectation in the near future as it is for the long range view.

The consumption of newsprint shows a slight improvement. The relatively light demand continues to cause concern among producers. The prevailing opinion in this division of the industry is, however, mildly optimistic of a gradual improvement during the early fall months. Prices hold firm and remain unchanged at prevailing quoted market prices.

Business in fine papers continues rather slow, though in some quarters of the market, a little improvement is reported. Some grades of sulphite papers continue to show improvement in sales, but the demand for many grades is about on the relatively low level of the preceding week. In general, the demand for white paper is less active for this week than for kraft papers, which continue in good demand. The representative quoted market prices for all grades of paper remain quite firm and no changes are expected in the near future.

Production of box board continues to rise and consumer demand is also reported as increasing, which is the normal situation in this market at this time of the year.

Mechanical Pulp

No change in the demand for mechanical pulp is reported for the week. The trade is not optimistic as to business in the near future. Prices continue unchanged and firm for all standard European, Canadian and domestic grades.

Chemical Pulp

The demand for all grades of chemical pulp continues light and in view of the ample stocks of pulp in storage at the mills, improvement in this market awaits a substantial increase in paper production. Prices for all standard grades of imported and domestic pulps are quite firm. Some price concessions on spot sales of relatively small quantities of domestic pulp are reported, here and there, at below representative quoted market prices. As this condition has been more or less prevalent for many months, and is also true in other raw material and commodity markets, it is given little consideration in the pulp trade.

Old Rope and Bagging

Demand for old rope continues light, with a few mills buying relatively small lots at favorable prices. Quotations for the current week, while unchanged, reflect more firmness and in some quarters of the trade, a rise in manila rope prices is looked for with any moderate increase in mill demand. Old bagging sales continue light, and prices hold relatively firm and unchanged from last week.

Rags

All grades of new and old domestic rags are quite firm. The supply of the higher quality new rag packings is reported as limited. Demand continues light and trading is characterized as dull. The foreign rag market is inactive and quotations are strictly nominal.

Waste Paper

The waste paper market continues dull. Little mill demand is reported for the current week for any grade of waste paper. Prices on all grades continue unchanged and more firm than for some time, as collectors are reluctant to dispose of stocks at less than prevailing quoted market prices.

Twine

No change in either demand or prices has been reported in the twine market this week. Demand for hard and soft fiber twines continues light and prices remain firm for all standard grades.

Logan, Lang Co. Damaged by Fire

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, August 29, 1938—Rebuilding of a part of the processing plant of the Logan, Long Company, paper manufactures, damaged by fire Saturday night, will be started at once, M. C. Bothe, general manager, said. Loss was estimated at $15,000. Mr. Bothe and representatives of insurance companies were seeking to determine the cause of the blaze, which firemen from Franklin and Middletown battled for nearly four hours.

A processing oven was damaged and water put out of commission several motors of a saturating machine. Only minor damage was caused to other machinery, Mr. Bothe said, and the loss was confined to building and stock.

Mr. Bothe said the oven would be rebuilt in a day or so and that other machinery would be ready for operation. He said the oven would probably be completed in several days.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, August 31, 1938.

BLANC FIXE—Quotations on blanc fixe continue firm and unchanged at prevailing prices. The pulp is offered at from $42.50 to $45 per ton, in bulk: the powder is quoted at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER—The price of bleaching powder is unchanged and conforms to prevailing quotations. Bleaching powder is quoted at from $2 to $2.25 per 100 pounds, in drums, at works.

CASEIN—The demand for casein continues good. Domestic ground casein is quoted at from 9½ to 10 cents per pound; domestic finely ground at from 10 to 10½ cents per pound; all prices in bags, car lot quantities.

CAUSTIC SODA—Prices of caustic soda continue firm and unchanged at prevailing quotations. Solid caustic soda is quoted at from $2.10 to $2.30 per 100 pounds; flake and ground at from $2.50 to $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Quotations on china clay continue firm and unchanged at prevailing prices. Imported clay is quoted at from $14.50 to $25 per ton, ship side. Domestic filler clay is offered at from $6.50 to $12 per ton; coating clay at from $11 to $22 per ton, at mines.

CHLORINE—Quotations on chlorine are firm and unchanged at prevailing market prices. Chlorine is offered at $2.15 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported as firm for the current week. Prices are slightly lower: "G" gum rosin is quoted at $4.35; "FF" wood rosin at $4.35 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent gum rosin size is offered at $2.60 per 100 pounds, f.o.b., shipping point.

SALT CAKE—Quotations on salt cake remain firm and conform to prevailing market prices. Quotations range at from $12 to $13.50 per ton; chrome salt cake at from $11 to $12 per ton, f.o.b., shipping point. Imported salt cake is quoted at from $14.50 to $15 per ton, Gulf or Atlantic Seaboard, on dock.

SODA ASH—Quotations on soda ash are reported as firm and conform to prevailing prices. Quotations on soda ash in car lots, at works, per 100 pounds, are as follows: in bulk, $.90; in bags, $1.05; and in barrels, $1.35.

STARCH—The demand for corn starch is reported as good for the week. Prices remain unchanged. Globe pearl is quoted at $2.45 per 100 pounds, in bags, and at $2.70 in barrels. Special paper starch is offered at $2.55 per 100 pounds, in bags, and at $2.80 in barrels; all prices in car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina remain firm and unchanged at prevailing market prices. The commercial grades are quoted at $1.15; iron free at $1.30 per 100 pounds, in barrels, car lot quantities, f.o.b., works.

SULPHUR—The demand for sulphur is reported as improved for the week. Prices remain firm and unchanged at prevailing market prices. Annual contracts are quoted at $18 per long ton, f.o.b., cars at mines. Quotations on spot and nearby car lots are unchanged at $21 per ton.

TALC—The prices of talc are firm and conform to prevailing quotations. Domestic talc is offered at from $15 to $18 per ton, Eastern mines. Imported talc is quoted at from $25 to $40 per ton, on dock.

Market Quotations

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	@	—
Kraft—per cwt.—Delivered Zone A			
No. 1 Northern	$5.25	@	—
Superstandard	4.12½	@	5.00
Northern Standard Wrapping	4.50	@	—
Standard Wrapping	4.00	@	—
Tissues—Per Ream—Carlots			
White No. 1	.92½	@	—
White No. 1 M. G.	.90	@	—
White No. 1½	.67½	@	—
White No. 2	.60	@	—
Anti-Tarnish M. G.	.75	@	—
Colored	.87½	@	—
Kraft	.75	@	—
Manila	.60	@	—
Unbl. Toilet, 1 M.	3.20	@	—
Bleached Toilet	5.26	@	—
Paper Towels—			
Unbleached	1.80	@	—
Bleached	2.10	@	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	$8.25	@	$9.75
No. 2 Jute	7.50	@	9.00
No. 1 Manila Wrapping, 35 lb.	5.00	@	—
No. 2 Manila Wrapping, 35 lb.	4.75	@	—
Boards, per ton—			
News	$27.50	@	$30.00
Chip	27.50	@	30.00
Sgl. Mla. Ll. Chip.	42.50	@	—
Jute Lined Chip	42.50	@	45.00
White Pat. Coated.	55.00	@	57.50
Kraft Liners	42.50	@	50.00
Binders Boards	71.00	@	77.00

The following are representative of distributors' resale prices:—

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1.	$39.10@$46.00	$40.25@$47.25
100% Rag	31.05@ 36.50	32.20@ 37.75
85% Rag		29.90@ 35.00
75% Rag	23.60@ 27.75	24.75@ 29.00
65% Rag		21.65@ 26.25
50% Rag	17.55@ 21.50	18.70@ 22.75
25% Rag	14.65@ 17.75	15.80@ 19.25

Colors at $1.00 cwt. extra

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$8.80@$10.75	$9.95@$12.00
No. 2	7.90@ 9.50	9.05@ 11.00
No. 4	7.00@ 8.50	8.20@ 10.00

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper, Delivered in Zone 1:

No. 1 Glossy Coated	$10.80@$12.25
No. 2 Glossy Coated	9.25@ 10.50
No. 3 Glossy Coated	8.15@ 9.25
No. 4 Glossy Coated	7.65@ 8.75
No. 1 Antique (watermarked)	7.65@ 8.75
No. 2 Offset	7.00@ 8.00
A Grade E. F.	6.80@ 7.75
A Grade S. & S. C.	7.05@ 8.00
B Grade E. F.	6.25@ 7.25
B Grade S. & S. C.	6.50@ 7.50
C Grade E. F.	6.00@ 7.00
C Grade S. & S. C.	6.25@ 7.25
D Grade E. F.	5.70@ 6.75
D Grade S. & S. C.	5.95@ 7.00

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	25.00	@	30.00
Dry	26.00	@	30.00
(Delivered)			
No. 1 Domestic and Canadian	27.00	@	30.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	2.50	@	3.00
Prime Qualities—			
Easy-Bleaching Sulphite	2.15	@	2.25
Strong Unbleached Sulphite	1.85	@	2.15
(On Dock, Atlantic Ports)			
Kraft Bleached	2.75	@	3.00
Kraft Light & Strong	2.00	@	2.15
Kraft No. 1	1.85	@	2.00
Kraft No. 2	1.65	@	1.80
(F.o.b. Pulp Mill)			
Kraft Domestic	1.75	@	2.25
(Delivered)			
Soda Bleached	2.55	@	—

Add 60 cents per short ton, dock charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1.	6.75	@	7.00
Silesias No. 1	4.00	@	4.25
New Unbleached	6.75	@	7.00
Blue Overall	5.50	@	5.75
Fancy	2.10	@	2.25
Washables	1.60	@	1.70
Mixed Khaki Cuttings	3.25	@	3.75
O. D. Khaki Cuttings	4.00	@	4.25

Old Rags

White, No. 1—			
Repacked	3.15	@	3.40
Miscellaneous	2.60	@	2.75
White, No. 2—			
Repacked	2.10	@	2.35
Miscellaneous	1.70	@	1.80
Thirds and Blues—			
Repacked	1.40	@	1.50
Miscellaneous	1.25	@	1.30
Roofing Rags—			
No. 1	1.00	@	1.10
No. 2	.85	@	.90
No. 3 (bagging)	.65	@	.70
No. 4	.65	@	.70
No. 5A	.65	@	.70

Foreign Rags

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	@	2.20
New Light Silesias	5.50	@	5.75
Light Flannelettes	5.50	@	5.75
New White Cuttings	7.00	@	7.50
New Light Oxford	4.00	@	4.50
New Light Prints	3.00	@	3.25

Old Rags

No. 1 White Linens	7.50	@	8.50
No. 2 White Linens	6.50	@	7.50
No. 3 White Linens	4.50	@	—

J. Andersen & Co.
Selling Agents
21 East 40th Street
New York

CHEMICAL & MECHANICAL PULP

Kraft Pulp
BERGVIK OCH ALA NYA AKTIEBOLAG
Söderhamn, Sweden
BJÖRK TRÄINDUSTRI AKTIEBOLAG
Ytterfärden, Sweden
MUNKSUNDS AKTIEBOLAG
Munksund, Sweden
NIMSJÖ CELLULOSA A.-B.
Sprängsviken, Sweden

Bleached Sulphite
KELLNER-PARRINGTON PAPER PULP CO., LTD.
Sarpsborg, Norway
Edsvalla, Sweden
Hallein & Villach, Austria

Unbleached Sulphite
AKTIESELSKABET GRAAKER CELLULOSEFABRIK
Greaker, Norway
BERGVIK OCH ALA NYA AKTIEBOLAG
Söderhamn, Sweden
CELLULOSEFABRIKS A.-B.
Bredsten, Canada-Skoghall
SVANÖ AKTIEBOLAG
Svanö, Sweden

THE DRAPER FELTS

All kinds and styles of Felts for all kinds and styles of Papers.

Write us about your Felt problems and let us help you reduce your Felt Costs—we will call anywhere at any time.

DRAPER BROS. COMPANY
CANTON, MASS.
Woolen manufacturers since 1856

Mundt
Perforated Screens
For Pulp and Paper Mills
Steel, Copper, Brass
Bronze, Monel Metal
and Other Alloys
Punched for Centrifugal
and Rotary Screens,
Pulp Washers, Drainer
Bottoms, Filter Plates, etc.
Charles Mundt & Sons
67 Fairmount Ave. Jersey City, N. J.

ENGLISH ECCO CLAYS CLAYS
TRADE MARK
UNIFORM • SUPERIOR • DEPENDABLE
English China Clays Sales Corporation
551 Fifth Avenue, New York City

No. 4 White Linens.	2.25	@	3.25
No. 1 White Cotton.	4.25	@	4.75
No. 2 White Cotton.	3.25	@	3.75
No. 3 White Cotton.	2.50	@	3.00
No. 4 White Cotton.	1.90	@	2.20
Extra Light Prints..	2.00	@	2.40
Ord. Light Prints...	1.75	@	2.15
Med. Light Prints...	1.55	@	1.95
Dutch Blue Cottons..	2.25	@	2.50
French Blue Linens..	3.00	@	—
Checks and Blues...	2.00	@	—
Linsey Garments....	1.90	@	2.00
Dark Cottons.....	1.50	@	1.60
Old Shopperies.....	1.30	@	1.45
New Shopperies.....	1.45	@	1.50
French Blues.....	2.25	@	2.50

Old Rope and Bagging

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	2.40	@	2.50
Domestic	2.25	@	2.35
Wool Tares, light...	1.80	@	1.90
Wool Tares, heavy...	1.90	@	2.00
Bright Bagging.....	1.70	@	1.80
Manila Rope—			
Foreign	2.50	@	2.75
Domestic	2.50	@	2.75
Jute Threads.....	2.75	@	3.00
Sisal Strings.....	1.50	@	1.60
Mixed Strings.....	.60	@	.70

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.65	@	2.70
Ordinary Hard White No. 1....	1.90	@	2.00
Soft White No. 1..	1.75	@	1.80
Soft White Extra..	2.25	@	2.40
Flat Stock—			
Stitchless	.80	@	.85
Overissue Mag.....	.70	@	.75
Solid Flat Book...	.60	@	.65
Crumbled No. 1....	.40	@	.45
Ledger Stock White.	1.35	@	1.40
Ledger Stock Colored	.80	@	.90
New B. B. Chips....	.15	@	.20
Manila—			
New Env. Cut.....	1.40	@	1.50
New Cuttings.....	1.25	@	1.35
Old Kraft Machine—			
Compressed bales..	.85	@	.90
News—			
No. 1 White News	1.35	@	1.40
Strictly Overissue..	.50	@	.55
Strictly Folded....	.35	@	.40
No. 1 Mixed Paper..	.15	&	.20

Twines

(F. o. b. Mill)
(Soft Fiber)

Coarse Polished—			
India	.11	@	.13
White Hemp.....	.12	@	.14
Fine Polished—			
Fine India.....	.15	@	.17
Unpolished—			
Box	.08½	@	—
Paper Makers.....	.07½	@	.08½
Tube Rope.....	.09	@	.10
Wall Paper.....	.10	@	.11
Wrapping	.11	@	.13
Soft Fiber Rope...	.09½	@	.11½
Cotton	.15	@	.20
(Hard Fiber)			
Medium Java.....	.09	@	.10
Mex. Sisal.....	.08½	@	.09½
Manila	.18	@	.25
Domestic	2.25	@	2.50
Sisal Rope.....	1.65	@	1.85
Mixed Rope.....	.50	@	.75
Transmission Rope ..	1.75	@	1.90
Soft Jute Ropes....	1.85	@	2.00
Jute Carpet Threads..	.75	@	.90
Gunny Bagging—			
Foreign	2.37½	@	2.40
Domestic	2.00	@	—
Bleachery Burlap....	3.25	@	3.62½
Scrap Burlap—			
Foreign	1.50	@	1.60
Domestic	1.35	@	1.40
Scrap Sisal	1.25	@	1.50
Scrap Sisal for Shredding	1.75	@	1.90
Wool Tares, Heavy..	1.50	@	1.60
New Burlap Cuttings	1.75	@	2.00
Aust. Wool Punches.	2.75	@	3.10
Heavy baling bagging	2.00	@	—
Paper Mill Bagging..	1.00	@	1.15
No. 2 Bagging.....	.60	@	.70

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints...	.03¼	@	.03½
New White No. 1...	.06¾	@	.07
New Light Flannelettes	.04½	@	.04¾
Silesias No. 1.....	.04½	@	.04¾
New Black Silesias..	.03¼	@	.04
Silesias No. 1			
Soft Unbleached.....	.06¼	@	.06¾
Blue Cheviots.....	.05	@	.05¼
Fancy	.03	@	.03½
Washable	.02¼	@	.03
Cottons—According to grades—			
Blue Overalls.....	.04¼	@	.04½
New Blacks, soft...	.03¼	@	.04
Khaki Cuttings....	.03¼	@	.03½
O. D. Khaki.....	.04	@	.04½
Corduroy	.02¼	@	.02½
New Canvas.....	.06¼	@	.07¼
B.V.D. Cuttings.....	—	@	.06½

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	—	@	2.75
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	1.90	@	2.00
Miscellaneous	2.00	@	2.25
Twos and Blues.....	1.75	@	2.00
Old Blue Overalls...	1.50	@	—
Third and Blues—			
Repacked	1.37½	@	1.75
Miscellaneous	1.25	@	1.40
Black Stockings.....	3.90	@	4.00
Roofing Stock—			
No. 1.....	1.00	@	1.10
No. 2.....	.75	@	.85
No. 3.....	.65	@	.70

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.05	@	1.15
Dutch Blues.....	2.65	@	2.75
New Checks and Blues	2.85	@	3.00
Old Fustians.....	2.25	@	2.50
Old Linsey Garments	2.20	@	2.25
New Silesias.....	6.00	@	6.50

PHILADELPHIA

Domestic Rags (New)

Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1.	.06	@	.06¼
New White, No. 2.	.03½	@	.04
Light Silesias.....	.04	@	.04½
Silesias, No. 1....	—	@	.04½
Black Silesias, soft.	—	@	.03
New Unbleached..	.05½	@	.06
Washable, No. 1..	.01½	@	.01¾
Blue Overall.....	.04	@	.04½
Cottons—According to grades—			
Washable No. 2...	.01	@	.01¼
New Blue.....	.01	@	.01¼
Fancy Percales....	—	@	.02½
New Black Soft...	.03	@	.03½
New Light Seconds	—	@	.04½
New Dark Seconds	.50	@	.75
Khaki Cuttings—			
No. 1 O. D.....	.03	@	.03½
No. 2 Mixed.....	.02	@	.02½
Corduroy	—	@	.02
New Canvas.....	.05	@	.05½
New Black Mixed.	.02½	@	.02¾

Domestic Rags (Old)

White No. 1—			
Repacked	3.00	@	3.25
Miscellaneous	2.50	@	2.75
Twos and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	3.00	@	3.50
Roofing Stock—			
Foreign No. 1....	—	@	.75
Domestic No. 1...	—	@	1.00
Domestic No. 2...	—	@	.85
Roofing Bagging..	—	@	.70

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.50	@	1.75
Domestic	1.50	@	1.75
Manila Rope.....	3.00	@	3.25
Sisal Rope.....	—	@	1.75
Mixed Rope.....	.75	@	1.00
Scrap—			
No. 1.....	—	@	1.50
No. 2.....	1.00	@	1.25
Wool Tares, heavy..	3.25	@	3.50
Mixed Strings.....	1.00	@	1.10
No. 1 New Light Burlap	2.50	@	3.00
New Burlap Cuttings	1.75	@	2.00

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White.	2.25	@	2.30
No. 2 Hard White.	2.00	@	2.10
No. 1 Soft White..	1.80	@	1.90
No. 2 Soft White..	1.30	@	1.40
No. 1 Mixed.....	.70	@	.75
Solid Ledger Stock..	1.50	@	1.60
Ledger Stock, white.	1.20	@	1.25
Ledger Stock, colored	.75	@	.80
No. 1 Books, heavy..	.65	@	.70
Manila Cuttings.....	1.50	@	1.75
Print Manila.....	.40	@	.45
Container Manila....	—	@	.40
Kraft Paper.....	.85	@	.90
No. 1 Mixed Paper..	.20	@	.25
Straw Board Chip...	.25	@	.30
Binders Board Chip.	.25	@	.30
Corrugated Board...	.50	@	.55
Overissue News.....	.50	@	.55
Old Newspapers.....	.35	@	.40

BOSTON

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.25	@	2.50
No. 1 Soft White..	1.85	@	2.15
No. 2 Mixed.....	.75	@	.80
Solid Ledger Books..	1.50	@	1.75
Overissue Ledger Stock	1.30	@	1.50
Mixed Ledgers.....	.85	@	.90
No. 1 Books, heavy..	.65	@	.75
No. 1 Books, light...	.65	@	.75
Crumpled Stitchless Book Stock.....	.55	@	.65
Manila Env. Cuttings	1.60	@	1.70
Manila Envelope Cuttings, extra quality.	2.00	@	2.10
No. 1 Old Manila...	.95	@	1.00
White Blank News..	1.30	@	1.40
No. 1 Kraft.....	.90	@	1.00
Mixed Papers.....	.15	@	—
Print Manila.....	.45	@	.55
Container Manilas...	.27½	@	—
Old Newspapers.....	.25	@	.32½
Paper Wool Strings..	.80	@	—
Overissue News.....	.45	@	.50
Box Board Chips....	.20	@	.25
Corrugated Boxes...	.30	@	.32½
Kraft corrugated boxes	.65	@	.70
Screening Wrappers..	.40	@	.45

Bagging

(F. o. b. Boston)

Manila Rope—			
Foreign	2.75	@	2.80
Domestic	2.25	@	2.50
Sisal Rope.....	1.65	@	1.85
Mixed Rope.....	.50	@	.75
Transmission Rope ..	1.75	@	1.90
Soft Jute Ropes....	1.85	@	2.00
Jute Carpet Threads..	.75	@	.90
Gunny Bagging—			
Foreign	2.37½	@	2.40
Domestic	2.00	@	—
Bleachery Burlap....	3.25	@	3.62½
Scrap Burlap—			
Foreign	1.50	@	1.60
Domestic	1.35	@	1.40
Scrap Sisal	1.25	@	1.50
Scrap Sisal for Shredding	1.75	@	1.90
Wool Tares, Heavy..	1.50	@	1.60
New Burlap Cuttings	1.75	@	2.00
Aust. Wool Punches.	2.75	@	3.10
Heavy baling bagging	2.00	@	—
Paper Mill Bagging..	1.00	@	1.15
No. 2 Bagging.....	.60	@	.70

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints...	.03¼	@	.03½
New White No. 1...	.06¾	@	.07
New Light Flannelettes	.04½	@	.04¾
Silesias No. 1.....	.04½	@	.04¾
New Black Silesias..	.03¼	@	.04
Silesias No. 1			
Soft Unbleached.....	.06¼	@	.06¾
Blue Cheviots.....	.05	@	.05¼
Fancy	.03	@	.03½
Washable	.02¼	@	.03

CHICAGO

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope Cuttings....	1.80	@	1.90
No. 1 Hard White.	1.70	@	1.80
No. 1 Soft White..	1.50	@	—
Ledger & Writings..	.75	@	.80
Solid Books.....	.55	@	—
Blanks	.90	@	—
Kraft	.60	@	—
New Kraft Cuts.....	1.10	@	—
Manila Env. Cuts...	Nominal		
Ex. No. 1 Manila...	Nominal		
Print Manila.....	Nominal		
Overissue News.....	.35	@	—
Old Newspapers—			
No. 1 Folded News	.30	@	—
No. 1 Mixed Paper	.20	@	—
Roofing Stocks—			
No. 1.....	2.00	@	2.10
No. 2.....	1.85	@	1.90

TORONTO

Paper

Bonds and Ledgers

Delivered

No. 1 White	.36½	@	—
No. 1 Tints	.37½	@	—
No. 2 White	.26½	@	—
No. 2 Tints	.27½	@	—
No. 4 White	—	@	.1550
No. 4 Tints 16.50		@	—
No. 5 Bond—White 11.85		@	—
No. 5 Bond—Tints .12.85		@	—
No. 5 Bond—Golden Rod 13.35		@	—
No. 5 Ledger—White .1185		@	—
No. 5 Ledger—Tints. .1285		@	—
No. 6 Bond—White .10.75		@	—
No. 6 Bond—Tints .11.25		@	—
No. 6 Bond—Golden Rod 12.75		@	—
No. 7 Bond—White . 9.10		@	—
No. 7 Bond—Tints . 9.60		@	—
No. 7 Bond—Golden Rod 11.10		@	—
Book—			
No. 1 M. F. 7.35		@	—
No. 2 M. F. 6.85		@	—
No. 3 M. F. 5.60		@	—
No. 1 S. C. 7.60		@	—
No. 2 S. C. 7.10		@	—
No. 3 S. C. 6.10		@	6.35
No. 1 Coated Book and Litho 12.50		@	—
No. 2 Coated Book and Litho 11.00		@	—
No. 3 Coated Book and Litho 10.00		@	—
Coated tinted.....13.50		@	—
Wrapping—delivered—			
Rag Brown.....	4.85	@	5.55
White Wrap.....	4.00	@	—
"B" Manila.....	4.90	@	6.25
No. 1 Manila.....	5.50	@	7.00
Fiber	5.50	@	—
Kraft No. 2.....	5.50	@	—

(F. o. b. Cars, Toronto)

News per ton—			
Rolls (contract)..$50.00		@	—
Sheets 69.50		@	—

Pulp

Ground wood.....29.00		@	—
Unbleached Sulphite..49.00		@	—
Book (Class 1).....59.00		@	—
Writing (Class 2)...57.00		@	—
Select (Class 3).....58.00		@	—
Kraft 50.00		@	—
Soda 54.00		@	56.00

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut...	2.25	@	—
Soft White.....	2.15	@	—
White Blk. News..	1.25	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.80	@	—
Light and Crumpled Book Stock.	.70	@	—
Ledgers and Writings	1.10	@	—
Manilas—			
New Manila Cut...	1.35	@	—
Printed Manilas...	.45	@	—
Kraft	.95	@	—
News and Scrap—			
Strictly Overissue.	.50	@	—
Strictly Folded....	.45	@	—
No. 1 Mixed Paper..	.30	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.06½	@	.06¾
Fancy Shirt Cuttings	.02½	@	.02¾